

Random Activation of Gene Expression (RAGE)

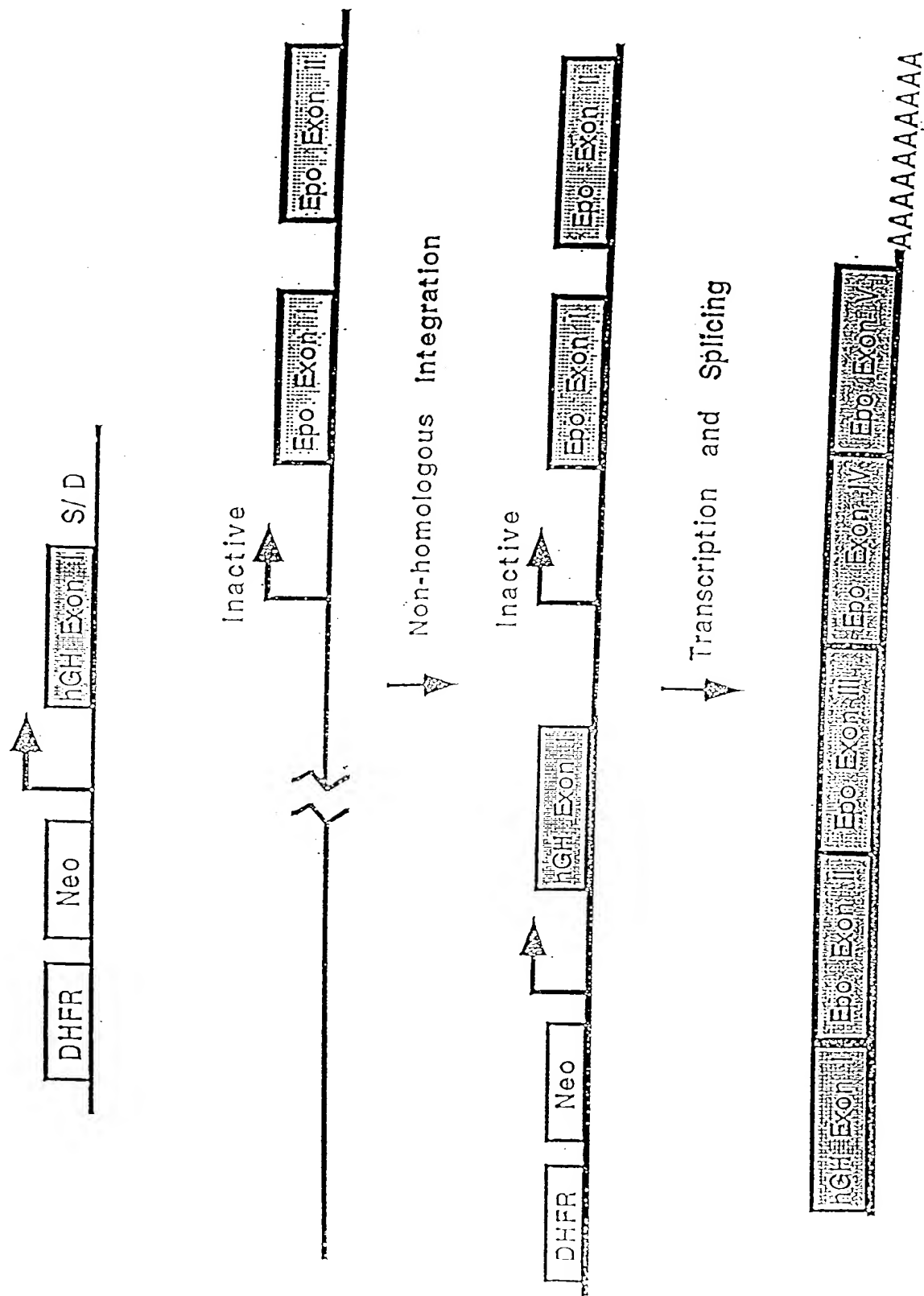


FIGURE 1

Activation Constructs without Translation Start Codons

Construct #



1



2



Untranslated

S/D Splice Donor

Fig. 2

Construct #

3-5



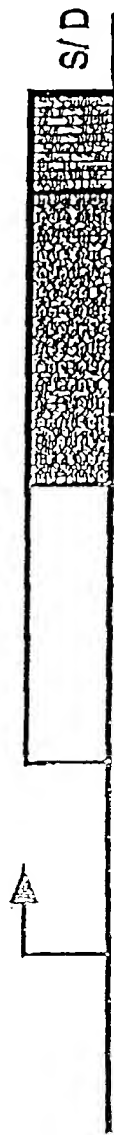
6-8



9-11



12-14



15-17

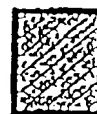


Untranslated



Translated

Secretion
Signal
Sequence



Protease
Cleavage
Site



Epitope
Tag

S/D

Splice
Donor

Fig. 3

pRIG-1

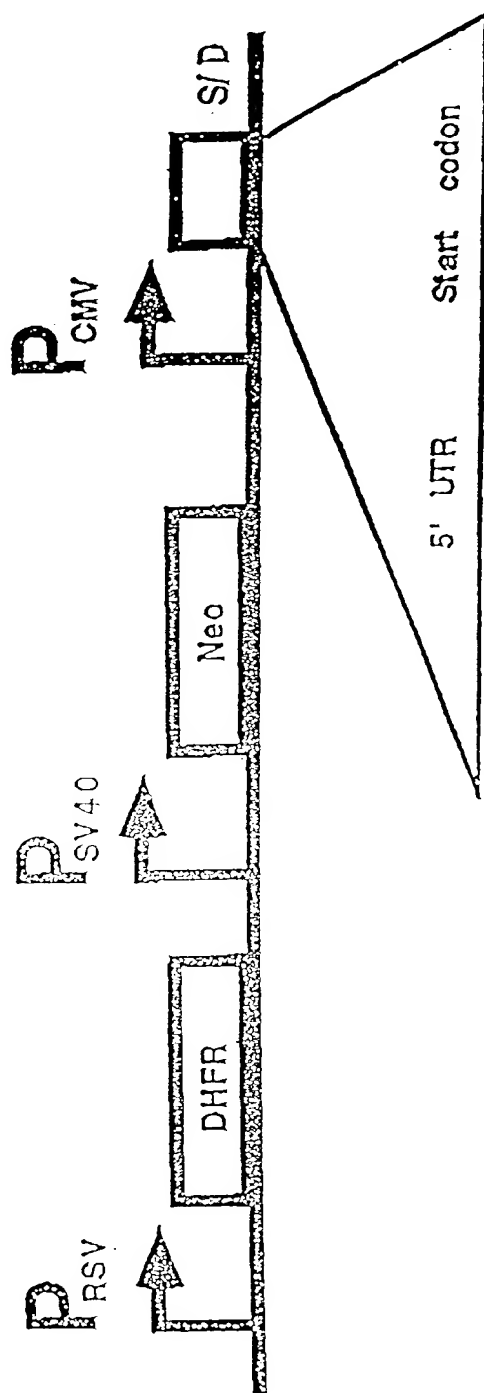


FIG. 4

5'AGATCTTCAATATTGGCCATTAGCCATATTATTTCATTGGTTATATAGCATAAATC
 AATATTGGCTATTGGCCATTGCATA
 CGTTGTATCTATATCATAATATGTACATTTATATTGGCTCATGTCCAATATGACCG
 CCATGTTGGCATTGATTATTGACT
 AGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATATATGGAGT
 TCCGCGTTACATAACTTACGGTAAA
 TGGCCCGCCTGGCTGACCGCCCAACGACCCCCGCCCATTGACGTCAATAATGACG
 TATGTTCCCATAGTAACGCCAATAG
 GGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAAACTGCCCACTTGGC
 AGTACATCAAGTGTATCATATGCCA
 AGTCCGCCCCCTATTGACGTCAATGACGGTAAATGGCCCGCCTGGCATTATGCCC
 AGTACATGACCTTACGGGACTTTCC
 TACTTGGCAGTACATCTACGTATTAGTTCATCGCTATTACCATGGTGATGCGGTTTT
 GGCAGTACACCAATGGGCGTGGAT
 AGCGGTTTGACTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGAG
 TTTGTTTTGGCACCAAAATCAACGG
 GACTTTCCAAAATGTCGTAACAACTGCGATCGCCCGCCCCGTTGACGCAAATGGG
 CGGTAGGCGTGTACGGTGGGAGGTC
 TATATAAGCAGAGCTCGTTTGTGAACCGTCAGATCACTAGAAGCTTTATTGCGG
 TAGTTTATCACAGTTAAATTGCTAA
 CGCAGTCAGTGCTTCTGACACAACAGTCTCGAACTTAAGCTGCAGTGACTCTCTT
 AATTAACCTCCACCAGTCTCACTTCA
 GTTCCTTTTGCCTCCACCAGTCTCACTTCAGTTCCTTTTGCATGAAGAGCTCAGAA
 TCAAAAGAGGAAACCAACCCCTAA
 GATGAGCTTTCCATGTAAATTTGTAGCCAGCTTCCTTCTGATTTTCAATGTTTCTT
 CCAAAGGTGCAGTCTCCAAAGAGA
 TTACGAATGCCTTGGAACCTGGGGTGCCTTGGGTGAGGACATCAACTTGGACAT
 TCCTAGTTTTCAAATGAGTGATGAT
 ATTGACGATATAAAATGGGAAAAAACTTCAGACAAGAAAAAGATTGCACAATTCA
 GAAAAGAGAAAGAGACTTTCAAGGA
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 ACCGATGATCAGGATATCTACAAGG
 TATCAATATATGATACAAAAGGAAAAAATGTGTTGGAAAAAATATTTGATTTGAA
 GATTCAAGAGAGGGTCTCAAAACCA
 AAGATCTCCTGGACTTGTATCAACACAACCCTGACCTGTGAGGTAATGAATGGAA
 CTGACCCCGAATTAAACCTGTATCA
 AGATGGGAAACATCTAAAACCTTTCTCAGAGGGTCATCACACACAAGTGGACCACC
 AGCCTGAGTGCAAAATTCAAGTGCA
 CAGCAGGGAACAAAGTCAGCAAGGAATCCAGTGTCGAGCCTGTCAGCTGTCCAG
 AGAAAGGGATCCAGGTGAGTAGGGCC
 CGATCCTTCTAGAGTCGAGCTCTCTTAAGGTAGCAAGGTTACAAGACAGGTTTAA
 GGAGACCAATAGAAACTGGGCTTGT
 CGAGACAGAGAAGACTCTTGCCTTTCTGATAGGCACCTATTGGTCTTACGCGGCC
 GCGAATTCCAAGCTTGAGTATTCTA
 TCGTGTACCTAAATAACTTGGCGTAATCATGGTCATATCTGTTTCTCTGTGTGAA
 ATTGTTATCCGCTCACAATCCACA
 CAACATACGAGCCGGAAGCATAAAGTGTAAGCCTGGGGTGCCTAATGAGTGAG
 CTAACCTCACATTAATTGCGTTGCGCGATGCTTCCATTTTGTGAGGGTTAATGC-

Figure 5A

TTCGAGAAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACAAGAAT
 GCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAA
 CCATTATAAGCTGCAATAAACA
 AGTTAACAACAACAATTGCATTCTTTTATGTTTTAGGTTTCAGGGGGAGATGTGG
 GAGGTTTTTTAAAGCAAGTAAAACC
 TCTACAAATGTGGTAAAATCCGATAAGGATCGATTCCGGAGCCTGAATGGCGAAT
 GGACGCGCCCTGTAGCGGCGCATT
 AGCGCGGCGGGTGTGGTGGTTACGCGCACGTGACCGCTACACTTGCCAGCGCCC
 TAGCGCCCGCTCCTTTTCGCTTTCTTC
 CCTTCCTTTCTCGCCACGTTGCGCGGCTTTCCCCGTCAAGCTCTAAATCGGGGGC
 TCCCTTTAGGGTTCCGATTTAGTGC
 TTTACGGCACCTCGACCCCAAAAACTTGATTAGGGTGATGGTTACGTTAGTGGG
 CCATCGCCCTGATAGACGGTTTTTC
 GCCCTTTGACGTTGGAGTCCACGTTCTTTAATAGTGGACTCTTGTTCCAAACTGG
 AACAACACTCAACCCTATCTCGGTC
 TATTCTTTTGATTATAAGGGATTTTGCCGATTTTCGGCCTATTGGTTAAAAAATGA
 GCTGATTTAACAAAAATTTAACGC
 GAATTTTAACAAAAATTTAACGCTTACAATTTTCGCCTGTGTACCTTCTGAGGCGG
 AAAGAACCAGCTGTGGAATGTGTGT
 CAGTTAGGGTGTGGAAAGTCCCCAGGCTCCCCAGCAGGCAGAAAGTATGCAAAGC
 ATGCATCTCAATTAGTCAGCAACCAG
 GTGTGGAAAGTCCCCAGGCTCCCCAGCAGGCAGAAAGTATGCAAAGCATGCATCT
 CAATTAGTCAGCAACCATAGTCCCGC
 CCCTAACTCCGCCCATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCTCCGCC
 CCATGGCTGACTAATTTTTTTTATT
 TATGCAGAGGCCGAGGCCGCTCGGCCTCTGAGCTATTCCAGAAGTAGTGAGGA
 GGCTTTTTTTGGAGGCCCTAGGCTTTTTG
 CAAAAAGCTTGATTCTTCTGACACAACAGTCTCGAACTTAAGGCTAGAGCCACCA
 TGATTGAACAAGATGGATTGCACGC
 AGGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTTCGGCTATGACTGGGCACAACAG
 ACAATCGGCTGCTCTGATGCCGCCG
 TGTTCGGGCTGTCAGCGCAGGGGCGCCCCGGTTCTTTTTGTCAAGACCGACCTGTC
 CGGTGCCCTGAATGAACTGCAGGAC
 GAGGCAGCGCGGCTATCGTGGCTGGCCACGACGGGCGTTCTTGCGCAGCTGTG
 CTCGACGTTGTCACTGAAGCGGGAAG
 GGACTGGCTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCTATCTCACCTT
 GCTCCTGCCGAGAAAGTATCCATCA
 TGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATTCTGA
 CCACCAAGCGAAACATCGCATCGAG
 CGAGCACGTACTCGGATGGAAGCCGGTCTTGTGATCAGGATGATCTGGACGAA
 GAGCATCAGGGGCTCGCGCCAGCCGA
 ACTGTTTCGCCAGGCTCAAGGCGCGCATGCCCGACGGCGAGGATCTCGTCGTGAC
 CCATGGCGATGCCTGCTTGCCGAATA
 TCATGGTGGAAAAATGGCCGCTTTTCTGGATTCATCGACTGTGGCCGGCTGGGTGT
 GGCGGACCGCTATCAGGACATAGCG
 TTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGCTGACCGCTTCC
 TCGTGCTTTACGGTATCGCCGCTCC
 CGATTGCGCAGCGCATCGCCTTCTATCGCCTTCTTGACGAGTTCTTCTGAGCGGGA
 CTCTGGGGTTTCGAAATGACCGACCAAGCGACGCCCAACCTGCCATCACGATGGC-

Figure 5B

CGCAATAAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTTGTGTGAAGA.
 TCCGCGTA-
 TGGTGCACTCTCAGTACAATCTGCTCTGATGCCGCATAGTTAAGCCAGCCCCGAC
 ACCCGCCAACAC
 CCGCTGACGCGCCCTGACGGGCTTGTCTGCTCCCGGCATCCGCTTACAGACAAGC
 TGTGACCGTCTCCGGGAGCTGCATG
 TGTCAGAGGTTTTACCGTCAACCGAAACGCGCGAGACGAAAGGGCCTCGTGA
 TACGCCTATTTTTATAGGTTAATGT
 CATGATAATAATGGTTTTCTTAGACGTCAGGTGGCACTTTTCGGGGAAATGTGCGC
 GGAACCCCTATTTGTTTTATTTTTCT
 AAATACATTCAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTTCA
 ATAATATTGAAAAAGGAAGAGTATG
 AGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTGCGGCATTTTGCCTTCC.
 TGTTTTTGCTCACCCAGAAACGCT
 GGTGAAAGTAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTTACATCGA
 ACTGGATCTCAACAGCGGTAAGATCC
 TTGAGAGTTTTTCGCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCT
 GCTATGTGGCGCGGTATTATCCCGT
 ATTGACGCCGGGCAAGAGCAACTCGGTGCGCCGCATACACTATTCTCAGAATGACT
 TGGTTGAGTACTCACCAGTCACAGA
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 ATGAGTGATAACACTGCGGCCAACT
 TACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACAT
 GGGGGATCATGTAACCTCGCCTTGAT
 CGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACG
 ATGCCTGTAGCAATGGCAACAACGTT
 GCGCAAACCTATTAACCTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAATA
 GACTGGATGGAGGGCGGATAAAGTTG
 CAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAAATC
 TGGAGCCGGTGAGCGTGGGTCTCGC
 GGTATCATTTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTATCT
 ACACGACGGGGAGTCAGGCAACTAT
 GGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGG
 TAACTGTCAGACCAAGTTTACTCAT
 ATATACTTTAGATTGATTTAAACTTCATTTTTAATTTAAAAGGATCTAGGTGAAG
 ATCCTTTTTGATAATCTCATGACC
 AAAATCCCTTAAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGA
 TCAAAGGATCTTCTTGAGATCCTTT
 TTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAAAAACCACCGCTACCAGCGGTG
 GTTTGTTTGCCGGATCAAGAGCTAC
 CAACTCTTTTTCCGAAGGTAACCTGGCTTCAGCAGAGCGCAGATACCAAATACTGT
 CTTCTAGTGTAGCCGTAGTTAGGC
 CACCACITCAAGAACTCTGTAGCACCGCCTACATACCTCGCTCTGCTAATCCTGT
 TACCAGTGGCTGCTGCCAGTGGCGA
 TAAGTCGTGTCTTACCGGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAG
 CGGTGCGGGCTGAACGGGGGGTTTCGT
 GCACACAGCCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGC
 GTGAGCTATGAGAAAGCGCCACGCTT
 CCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGG-

Figure 5C

AGAGCGCACGAGGGAGGTTCCAGGGGGAAACGCCTGGTATCTTTATAGTCCTGTC
GGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGG
GGCGGAGCCTATGGAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGCCTT
TTGCTGGCCTTTTGCTCACATGGCT
CGAC3'

Figure 5D

5'AGATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATAGCATAAATC
 AATATTGGCTATTGGCCATTGCAT
 ACGTTGTATCTATATCATAATATGTACATTTATATTGGCTCATGTCCAATATGACC
 GCCATGTTGGCATTGATTATTGAC
 TAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATATATGGAG
 TTCCGCGTTACATAACTTACGGTAA
 ATGGCCCGCCTGGCTGACCGCCCAACGACCCCGCCCATTGACGTCAATAATGAC
 GTATGTTCCCATAGTAACGCCAATA
 GGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAAACTGCCCACTTGG
 CAGTACATCAAGTGTATCATATGCC
 AAGTCCGCCCCCTATTGACGTCAATGACGGTAAATGGCCCGCCTGGCATTATGCC
 CAGTACATGACCTTACGGGACTTTC
 CTACTTGGCAGTACATCTACGTATTAGTCATCGCTATTACCATGGTGATGCGGTT
 TTGGCAGTACACCAATGGGCGTGGA
 TAGCGGTTTGGACTCACGGGGATTTCCAAGTCTCCACCCCATTGACGTCAATGGGA
 GTTTGTTTTGGCACCAAAATCAACG
 GGACTTTCCAAAATGTGCTAACAACTGCGATCGCCCGCCCGTTGACGCAAATGG
 GCGGTAGGCGTGTACGGTGGGAGGT
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 GTAGTTTATCACAGTTAAATTGCTA
 ACGCAGTCAGTGCTTCTGACACAACAGTCTCGAACTTAAGCTGCAGTGACTCTCT
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 AGTTCCTTTTGCCTCCACCAGTCTCACTTCAGTTCCTTTTGCATGAAGAGCTCAGA
 ATCAAAAAGAGGAAACCAACCCCTA
 AGATGAGCTTTCCATGTAAATTTGTAGCCAGCTTCCTTCTGATTTTCAATGTTTCT
 TCCAAAGGTGCAGTCTCCAAAGAG
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 AAAGATCTCCTGGACTTGTATCAACACAACCCTGACCTGTGAGGTAATGAATGGA
 ACTGACCCCGAATTAAACCTGTATC
 AAGATGGGAAACATCTAAACTTTCTCAGAGGGTCATCACACACAAGTGGACCAC
 CAGCCTGAGTGCAAAATTCAAGTGC
 ACAGCAGGGAACAAAGTCAGCAAGGAATCCAGTGTCGAGCCTGTGAGCTGTCCA
 GAGAAAGGGATCCCAGGTGAGTAGGG
 CCCGATCCTTCTAGAGTCGAGCTCTCTTAAGGTAGCAAGGTTACAAGACAGGTTT
 AAGGAGACCAATAGAAACTGGGCTT
 GTCGAGACAGAGAAGACTCTTGCGTTTCTGATAGGCACCTATTGGTCTTACGCGG
 CCGCGAATTCCAAGCTTGAGTATTC
 TATCGTGTACCTAAATAACTTGGCGTAATCATGGTCATATCTGTTTCCTGTGTGA
 AATTGTTATCCGCTCACAATTCCA
 CACAACATACGAGCCGGAAGCATAAAGTGTAAGCCTGGGGTGCTAATGAGTG
 AGCTAACTCACATTAATTGCGTTGCG
 CGATGCTTCCAATTTTGTGAGGGTTAATGCTTCGAGAAGACATGATAAGATACATT
 GATGAGTTTGGACAAACCACAACAAGAATGCAGTGAAAAAAATGCITTTATTGT-

Figure 6A

GAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAA
CAAGTTAACAACAACAAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGGAGATGT
GGGAGGTTTTTTTAAAGCAAGTAAAA
CCTCTACAAATGTGGTAAATCCGATAAGGATCGATTCCGGAGCCTGAATGGCGA
ATGGACGCGCCCTGTAGCGGCGCAT
TAAGCGCGGGCGGTGTGGTGGTTACGCGCACGTGACCGCTACACTTGCCAGCGC
CCTAGCGCCCCGCTCCTTTTCGCTTTCT
TCCCTTCCTTTTCTCGCCACGTTTCGCCGGCTTTCCCCGTCAAGCTCTAAATCGGGG
GCTCCCTTTAGGGTTCCGATTTAGT
GCTTTACGGGCACCTCGACCCCAAAAACTTGATTAGGGTGATGGTTCACGTAGTG
GGCCATCGCCCTGATAGACGGTTTT
TCGCCCTTTGACGTTGGAGTCCACGTTCTTTAATAGTGGACTCTTGTTCCAAACTG
GAACAACACTCAACCCTATCTCG
TCTATTCTTTTGATTATAAGGGATTTTGCCGATTTTCGGCCTATTGGTTAAAAAAT
GAGCTGATTTAACAATAATTTAAC
GCGAATTTTAACAAAATATTAACGCTTACAATTTTCGCTGTGTACCTTCTGAGGC
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AGGTGTGGAAAGTCCCCAGGCTCCCCAGCAGGCAGAAGTATGCAAAGCATGCAT
CTCAATTAGTCAGCAACCATAGTCCC
GCCCTAACTCCGCCCATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTTCTCCG
CCCCATGGCTGACTAATTTTTTTTA
TTTATGCAGAGGCCGAGGCCGCTCGGCCTCTGAGCTATTCCAGAAGTAGTGAGG
AGGCTTTTTTGGAGGCCCTAGGCTTT
TGCAAAAAGCTTGATTCTTCTGACACAACAGTCTCGAACTTAAGGCTAGAGCCAC
CATGATTGAACAAGATGGATTGCAC
GCAGGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTCGGCTATGACTGGGCACAAC
AGACAATCGGCTGCTCTGATGCCGC
CGTGTTCCGGCTGTGACGCGAGGGGCGCCCGGTTCTTTTTGTCAAGACCGACCTG
TCCGGTGCCCTGAATGAACTGCAGG
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AGGGACTGGCTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCATCTCACC
TTGCTCCTGCCGAGAAAGTATCCAT
CATGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATTG
GACCACCAAGCGAAACATCGCATCG
AGCGAGCACGTA CTG GATGGAAGCCGGTCTTGTCGATCAGGATGATCTGGACG
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TATCATGGTGGAAAATGGCCGCTTTTCTGGATTCATCGACTGTGGCCGGCTGGGT
GTGGCGGACCGCTATCAGGACATAGCGTTGGCTACCCGTGATATTGCTGAAGAGC
TTGGCGGCGAATGGGCTGACCGCTTCCCTCGTGCTTTACGGTATCGCCGCT
CCCGATTTCGCAGCGCATCGCCTTCTATCGCCTTCTTGACGAGTTCTTCTGAGCGG
GACTCTGGGGTTCGAAATGACCGAC
CAAGCGACGCCCAACCTGCCATCACGATGGCCGCAATAAAATATCTTTATTTTCA
TTACATCTGTGTGTTGGTTTTTTGT
GTGAAGATCCGCGTATGGTGCATCTCAGTACAATCTGCTCTGATGCCGCATAGT
TAAGCCAGCCCCGACACCCGCCAACACCCGCTGACGCGCCCTGACGGGCT-

Figure 6B

TGTCTGCTCCCGGCATCCGCTTACAGACAAGCTGTGACCGTCTCCGGGAGCTGCA
 TGTGTCAGAGGTTTTTCACCGTCATCACCGAAACGCGCGAGACGAAAGGGCCTCGT
 GATACGCCTATTTTTATAGGTTAAT
 GTCATGATAATAATGGTTTTCTTAGACGTCAGGTGGCACTTTTCGGGGAAATGTGC
 GCGGAACCCCTATTTGTTTTATTTTT
 CTAATAACATTCAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTT
 CAATAATATTGAAAAAGGAAGAGTA
 TGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTTCGGGCATTTTGCCTT
 CCTGTTTTTGTCTACCCAGAAACG
 CTGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTACATC
 GAACTGGATCTCAACAGCGGTAAAGAT
 CCTTGAGAGTTTTTCGCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTT
 CTGCTATGTGGCGCGGTATTATCCC
 GTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGA
 CTGGTTGAGTACTACCCAGTCACA
 GAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATAA
 CCATGAGTGATAAACTGCGGCCAA
 CTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAAC
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 ATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCA
 CGATGCCTGTAGCAATGGCAACAACG
 TTGCGCAAACCTATTAACCTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAA
 TAGACTGGATGGAGGCGGATAAAGT
 TGCAAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTTATTGCTGATAAA
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 GTCCITCTAGTGTAGCCGTAGTTAG
 GCCACCACTTCAAGAACTCTGTAGCACCGCCTACATACCTCGCTCTGCTAATCCT
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 AGACGATAGTTACCGGATAAGGCGCAGCGGTGCGGCTGAACGGGGGGTTC
 GTGCACACAGCCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTACA
 GCGTGAGCTATGAGAAAGCGCCACGC
 TTCCCGAAGGGAGAAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAG
 GAGAGCGCACGAGGGAGCTTCCAGGG
 GGAAACGCCTGGTATCTTTATAGTCCTGTGCGGGTTTTGCCACCTCTGACTTGAGC
 GTCGATTTTTGTGATGCTCGTCAGG
 GGGGCGGAGCCTATGGAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGC
 CTTTTGCTGGCCTTTTGCTCACATGG
 CTCGAC3'

Figure 6C

5'AGATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATAGCATAAATC
 AATATTGGCTATTGGCCATTGCAT
 ACGTTGTATCTATATCATAATATGTACATTTATATTGGCTCATGTCCAATATGACC
 GCCATGTTGGCATTGATTATTGAC
 TAGTTATTAATAGTAATCAATTACGGGGTTCATTAGTTCATAGCCCATATATGGAG
 TTCCGCGTTACATAACTTACGGTAA
 ATGGCCCGCCTGGCTGACCGCCCAACGACCCCGCCCATGACGTCAATAATGAC
 GTATGTTCCCATAGTAACGCCAATA
 GGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAAACTGCCCCACTTGG
 CAGTACATCAAGTGTATCATATGCC
 AAGTCCGCCCCCTATTGACGTCAATGACGGTAAATGGCCCGCCTGGCATTATGCC
 CAGTACATGACCTTACGGGACTTTC
 CTACTTGGCAGTACATCTACGTATTAGTCATCGCTATTACCATGGTGATGCGGTT
 TTGGCAGTACACCAATGGGCGTGGA
 TAGCGGTTTGACTCACGGGGATTTCGAAGTCTCCACCCCATGACGTCAATGGGA
 GTTTGTTTTGGCACCAAAATCAACG
 GGACTTTCCAAAATGTCGTAACAACTGCGATCGCCCGCCCCGTGACGCAAATGG
 GCGGTAGGCGTGACGGTGGGAGGT
 CTATATAAGCAGAGCTCGTTTAGTGAACCGTCAGATCACTAGAAGCTTTATTGCG
 GTAGTTTATCACAGTTAAATTGCTA
 ACGCAGTCAGTGCTTCTGACACAACAGTCTCGAACTTAAGCTGCAGTGACTCTCT
 TAATTAACCTCCACCAGTCTCACTTC
 AGTTCCTTTTGCCTCCACCAGTCTCACTTCAGTTCCTTTTGCATGAAGAGCTCAGA
 ATCAAAAGAGGAAACCAACCCCTA
 AGATGAGCTTTCCATGTAAATTTGTAGCCAGCTTCCTTCTGATTTTCAATGTTTCT
 TCCAAAGGTGCAGTCTCCAAAGAG
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 GACCGATGATCAGGATATCTACAAG
 GTATCAATATATGATACAAAAGGAAAAAATGTGTTGGAAAAAATATTTGATTTGA
 AGATTCAAGAGAGGGTCTCAAAACC
 AAAGATCTCCTGGACTTGATCAACACAACCCTGACCTGTGAGGTAATGAATGGA
 ACTGACCCCGAATTAAACCTGTATC
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 CAGCCTGAGTGCAAAATTCAAGTGC
 ACAGCAGGGAACAAAGTCAGCAAGGAATCCAGTGTGAGCCTGTCAGCTGTCCA
 GAGAAAGGGATCCACAGGTGAGTAGG
 GCCCGATCCTTCTAGAGTCGAGCTCTCITAAGGTAGCAAGGTTACAAGACAGGTT
 TAAGGAGACCAATAGAAACTGGGCT
 TGTCGAGACAGAGAAGACTCTTGCGTTTCTGATAGGCACCTATTGGTCTTACGCG
 GCCGCGAATTCCAAGCTTGAGTATT
 CTATCGTGTACCTAAATAACTTGGCGTAATCATGGTCATATCTGTITCCTGTGTG
 AAATTGTTATCCGCTCACAAATTC
 ACACAACATACGAGCCGGAAGCATAAAGTGTAAGCCTGGGGTGCCTAATGAGT
 GAGCTAACTCACATTAATTGCGTTGC
 GCGATGCTTCCATTTTGTGAGGGTAAATGCTTCGAGAAGACATGATAAGATACAT
 TGATGAGTTTGGACAAACCACAACA AGAATGCAGTGAAAAAAATGC-

Figure 7A

TTTATTTGTGAAATTTGTGATG
 CTATTGCTTTATTTGTAACCATTTATAAGCTGCAATAA
 ACAAGTTAACAACAACAATTGCATTTTATGTTTCAGGTTTCAGGGGGAGATG
 TGGGAGGTTTTTTTAAAGCAAGTAAA
 ACCTCTACAAATGTGGTAAAATCCGATAAGGATCGATTCCGGAGCCTGAATGGCG
 AATGGACGCGCCCTGTAGCGGCGCA
 TTAAGCGCGGCGGGTGTGGTGGTTACGCGCACGTGACCGCTACACTTGCCAGCGC
 CCTAGCGCCCGCTCCTTTTCGCTTC
 TTCCCTTCCTTTCTCGCCACGTTTCGCGGCTTTCCCGTCAAGCTCTAAATCGGGG
 GCTCCCTTTAGGGTTCCGATTTAG
 TGCTTTACGGCACCTCGACCCCAAAAACTTGATTAGGGTGATGGTTCACGTAGT
 GGGCCATCGCCCTGATAGACGGTTT
 TTCGCCCTTTGACGTTGGAGTCCACGTTCTTTAATAGTGGACTCTTGTTCCAACT
 GGAACAACACTCAACCCTATGTCG
 GTCTATTCTTTTGATTTATAAGGGATTTTGCCGATTTCCGGCCTATTGGTTAAAAA
 TGAGCTGATTTAACAATAATTTAA
 CGGAATTTTAACAAAATATTAACGCTTACAATTTTCGCCTGTGTACCTTCTGAGG
 CGGAAAGAACCAGCTGTGGAATGTG
 TGTCAGTTAGGGTGTGGAAGTCCCCAGGCTCCCCAGCAGGCAGAAAGTATGCAA
 AGCATGCATCTCAATTAGTCAGCAAC
 CAGGTGTGGAAGTCCCCAGGCTCCCCAGCAGGCAGAAAGTATGCAAAGCATGCA
 TCTCAATTAGTCAGCAACCATAGTCC
 CGCCCCTAACCTCGCCCATCCCGCCCCCTAACTCCGCCAGTTCCGCCCATTTCTCC
 GCCCATGGCTGACTAATTTTTTT
 ATTTATGCAGAGGCCGAGGCCCTCGGCCTCTGAGCTATTCCAGAAGTAGTGAG
 GAGGCTTTTTTTGGAGGCCTAGGCTT
 TTGCAAAAAGCTTGATTCTTCTGACACAACAGTCTCGAACTTAAGGCTAGAGCCA
 CCATGATTGAACAAGATGGATTGCA
 CGCAGGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTCCGGCTATGACTGGGCACAA
 CAGACAATCGGCTGCTCTGATGCCG
 CCGTGTTCGGCTGTGACGCGAGGGGCGCCCGGTTCTTTTTGTCAAGACCGACCT
 GTCCGGTGCCCTGAATGAACTGCAG
 GACGAGGCAGCGCGGCTATCGTGGCTGGCCACGACGGGCGTTCCCTTGCGCAGCT
 GTGCTCGACGTTGTCACTGAAGCGG
 AAGGGACTGGCTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCATCTCAC
 CTTGCTCCTGCCGAGAAAGTATCCA
 TCATGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATT
 CGACCACCAAGCGAAACATCGCATC
 GAGCGAGCACGTAACGATGGAAGCCGGTCTTGTCGATCAGGATGATCTGGAC
 GAAGAGCATCAGGGGCTCGCGCCAGC
 CGAACTGTTCCGACGGCTCAAGGCGCGCATGCCCGACGGCGAGGATCTCGTCGT
 GACCCATGGCGATGCCTGCTTGCCGA
 ATATCATGGTGGAAAATGGCCGCTTTTCTGGATTTCATCGACTGTGGCCGGCTGGG
 TGTGGCGGACCGCTATCAGGACATA
 GCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGCTGACCGCT
 TCCTCGTGCTTTACGGTATCGCCG
 TCCCGATTGCGAGCGCATCGCCTTCTATCGCCTTCTTGACGAGTTCTTCTGAGCG
 GGACTCTGGGGTTTCGAAATGACCGA
 CCAAGCGACGCCCAACCTGCCATCACGATGGCCGCAATAAAATATCTTTATTTTC
 ATTACATCTGTGTGTTGGTTTTTTGTGTGAAGATCCGCGTATGGTGCACTCTC-

Figure 7B

AGTACAATCTGCTCTGATGCCGCATAGTTAAGCCAGCCCCGACACCCGCCAA
 CACCCGCTGACGCGCCCTGACGGGCTTGTCTGCTCCCGGCATCCGCTTACAGACA
 AGCTGTGACCGTCTCCGGGAGCTGC
 ATGTGTCAGAGGTTTTACCCGTCATCACCGAAACGCGCGAGACGAAAGGGCCTCG
 TGATACGCCTATTTTTATAGGTAA
 TGTCATGATAATAATGGTTTCTTAGACGTCAGGTGGCACTTTTCGGGGAAATGTG
 CGCGGAACCCCTATTTGTTTATTTT
 TCTAAATACATTCAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATGCT
 TCAATAATATTGAAAAAGGAAGAGT
 ATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTGCGGCATTTTGCCT
 TCCTGTTTTTGCTCACCCAGAAAC
 GCTGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTACAT
 CGAACTGGATCTCAACAGCGGTAAGA
 TCCTTGAGAGTTTTTCGCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGT
 TCTGCTATGTGGCGCGGTATTATCC
 CGTATTGACGCCGGGCAAGAGCAACTCGGTGCGCCGCATACACTATTCTCAGAATG
 ACTTGGTTGAGTACTCACCGATCAC
 AGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATA
 ACCATGAGTGATAACACTGCGGCCA
 ACITACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCCTTTTTTGCACAA
 CATGGGGGATCATGTAACCTCGCCTT
 GATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACC
 ACGATGCCTGTAGCAATGGCAACAAC
 GTTGCGCAAACTATTAACCTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTA
 ATAGACTGGATGGAGGCGGATAAAG
 TTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAA
 ATCTGGAGCCGGTGAGCGTGGGTCT
 CGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTA
 TCTACACGACGGGGAGTCAGGCAAC
 TATGGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAAGCAT
 TGGTAACTGTCAGACCAAGTTTACT
 CATATATACTTTAGATIGATTAAAACTTCATTTTTAATTTAAAAGGATCTAGGTG
 AAGATCCTTTTTGATAATCTCATG
 ACCAAAATCCCTTAACGTGAGTTTTCTGTTCCACTGAGCGTCAGACCCCGTAGAAA
 AGATCAAAGGATCTTCTTGAGATCC
 TTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAAAAACCACCGCTACCAGCG
 GTGGTTTGTGTTGCCGGATCAAGAGC
 TACCAACTCTTTTTCCGAAGGTAACCTGGCTTCAGCAGAGCGCAGATACCAAATAC
 TGTCCTTCTAGTGTAGCCGTAGTTA
 GGCCACCACTTCAAGAACTCTGTAGCACCGCCTACATACCTCGCTCTGCTAATCC
 TGTTACCAGTGGCTGCTGCCAGTGG
 CGATAAGTCGTGTCTTACCGGGTTGGACTCAAGACGATAGTTACCGGATAAGGCG
 CAGCGGTGCGGGCTGAACGGGGGGTT
 CGTGACACAGCCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTAC
 AGCGTGAGCTATGAGAAAGCGCCACGCTTCCCGAAGGGAGAAAGGCGGACAGGT
 ATCCGGTAAGCGGCAGGGTTCGGAACAGGAGAGCGCACGAGGGAGCTTCCAGG
 GGGAAACGCCTGGTATCTTTATAGTCTGTGCGGGTTTCGCCACCTCTGACTTGAG
 CGTCGATTTTTGTGATGCTCGTCAG
 GGGGGCGGAGCCTATGGAAAAACGCCAGCAACGCGGCTTTTTTACGGTTCCCTGG
 CCTTTGCTGGCCTTTTGCTCACATGGCTCGAC3'

Figure 7C

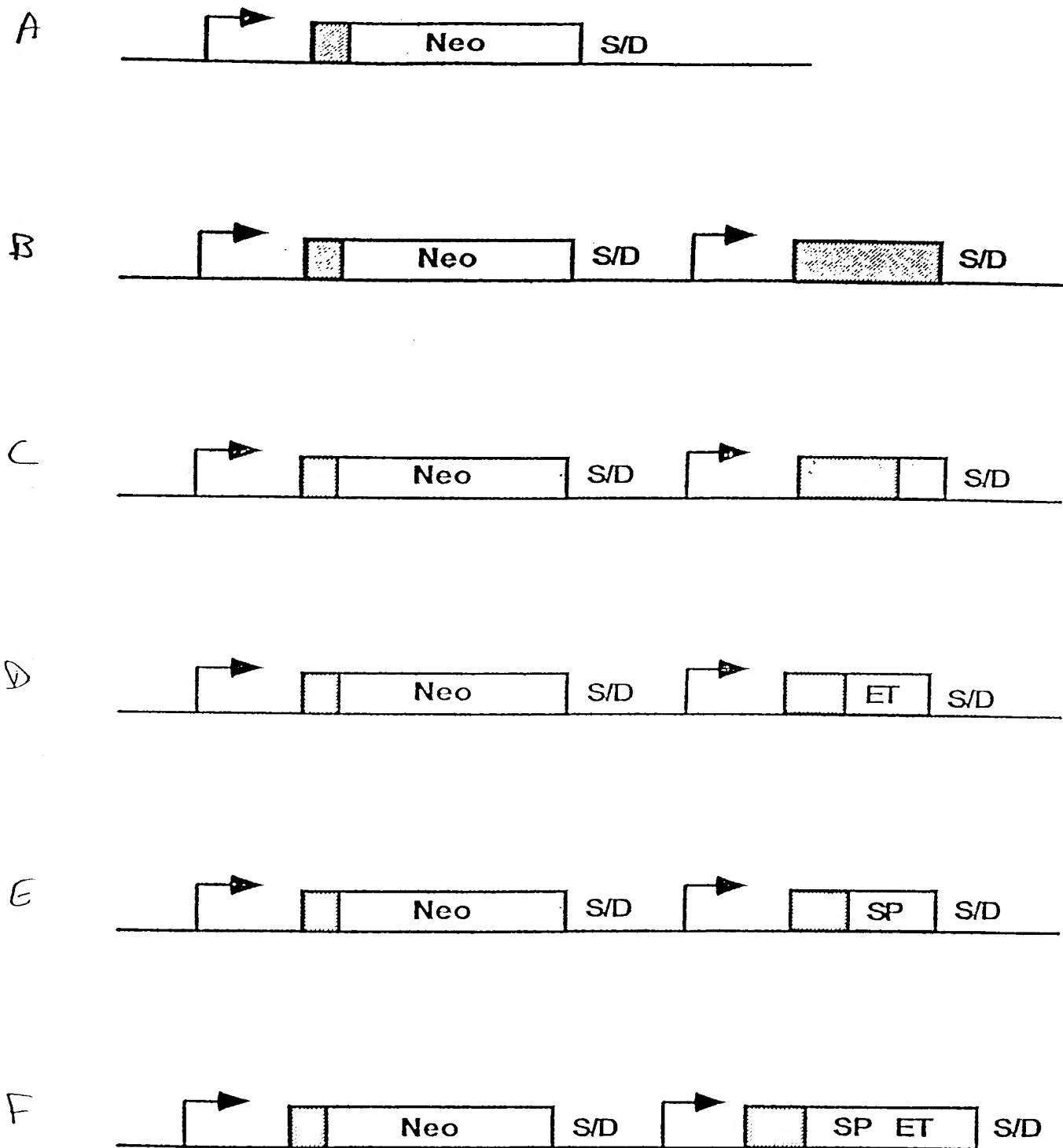


FIGURE 8

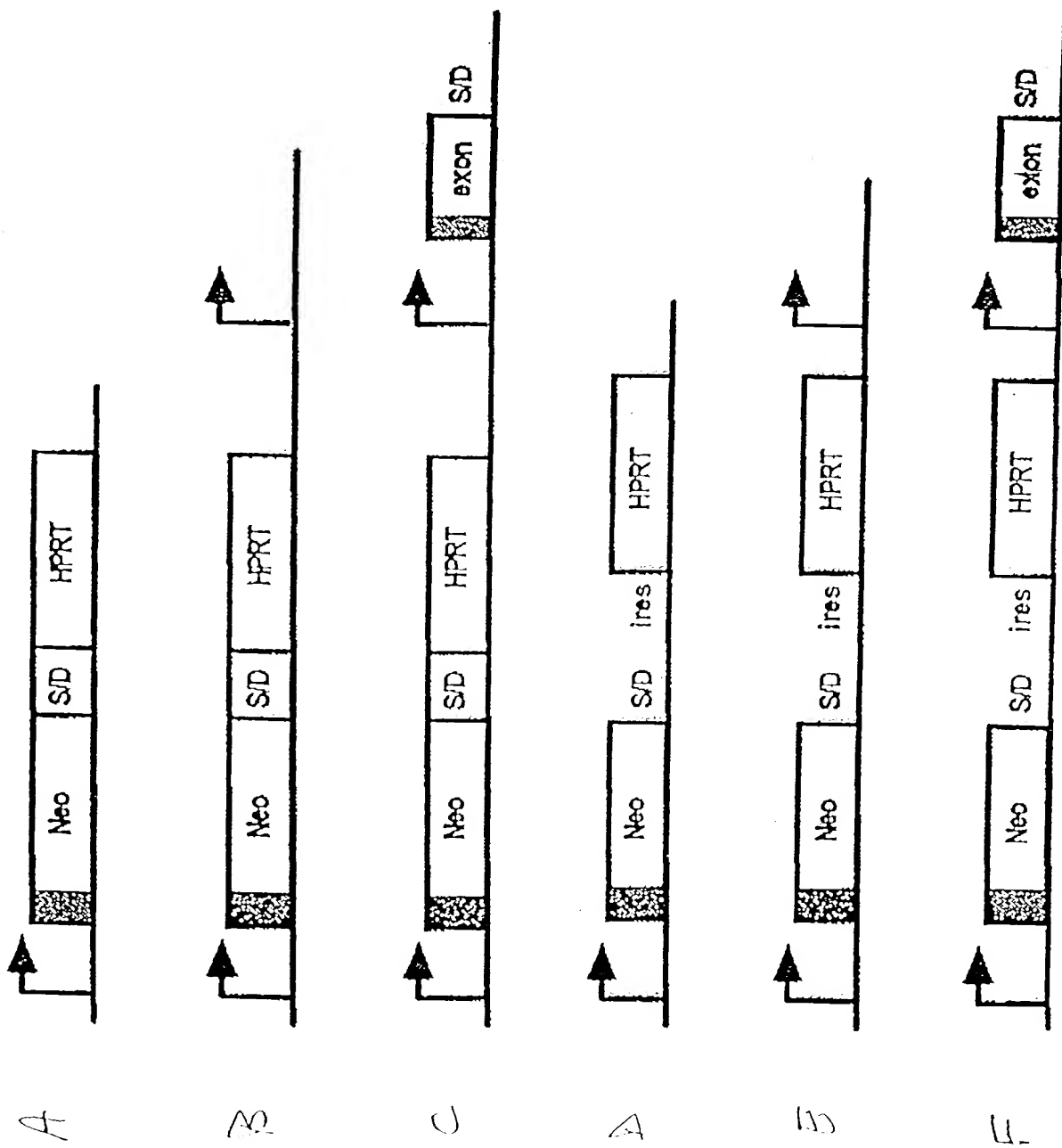


FIGURE 9

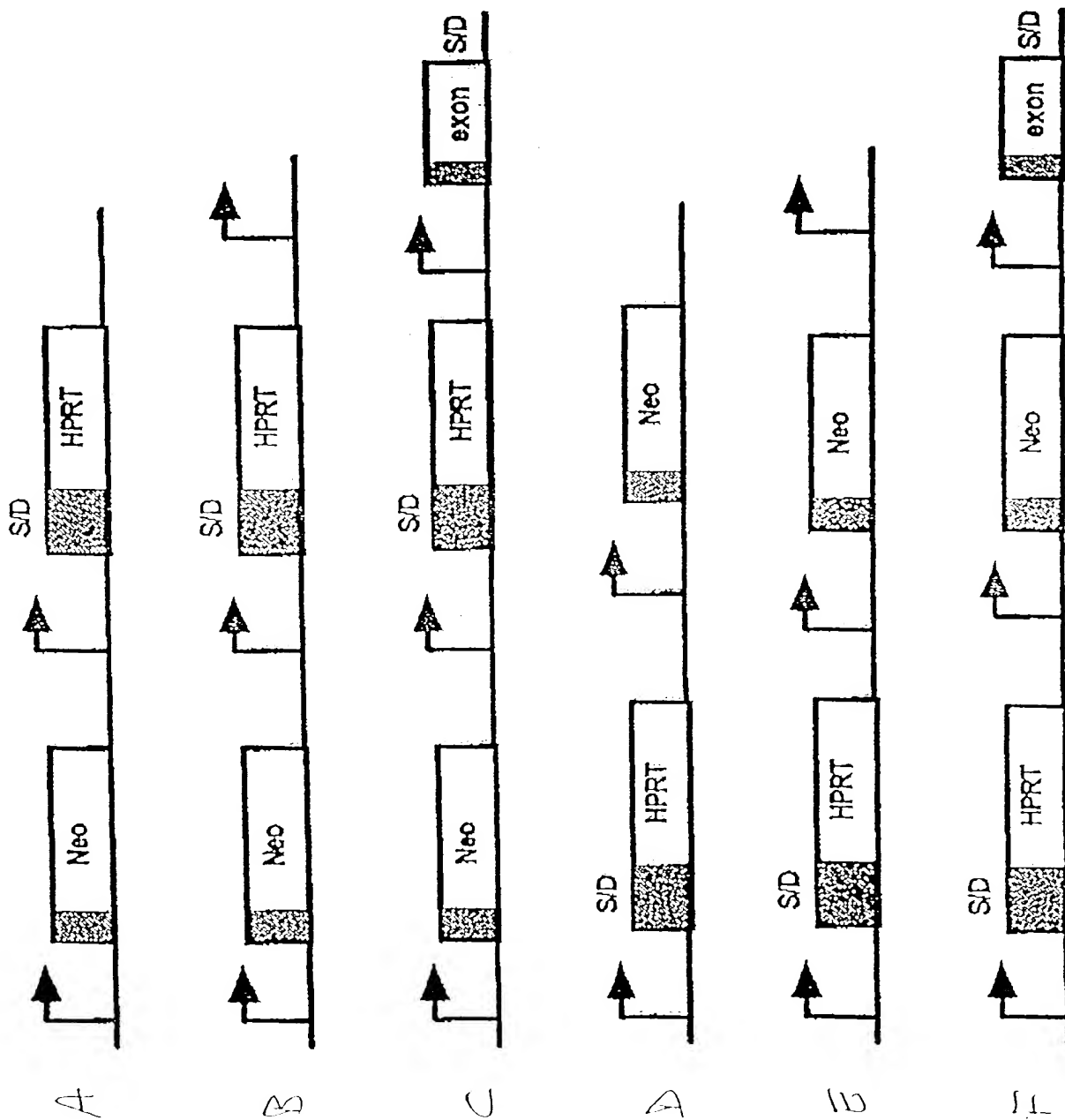


FIGURE 10



FIGURE 11

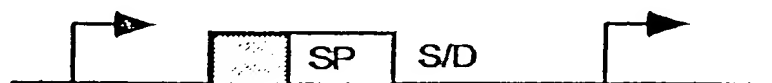
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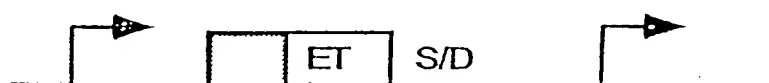
B



C



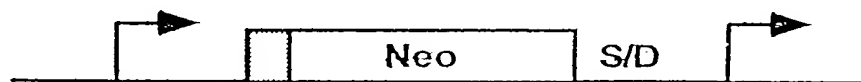
D



E



F



G

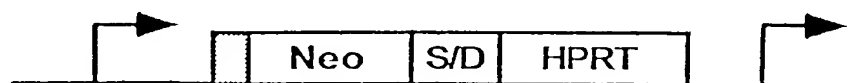


FIGURE 12

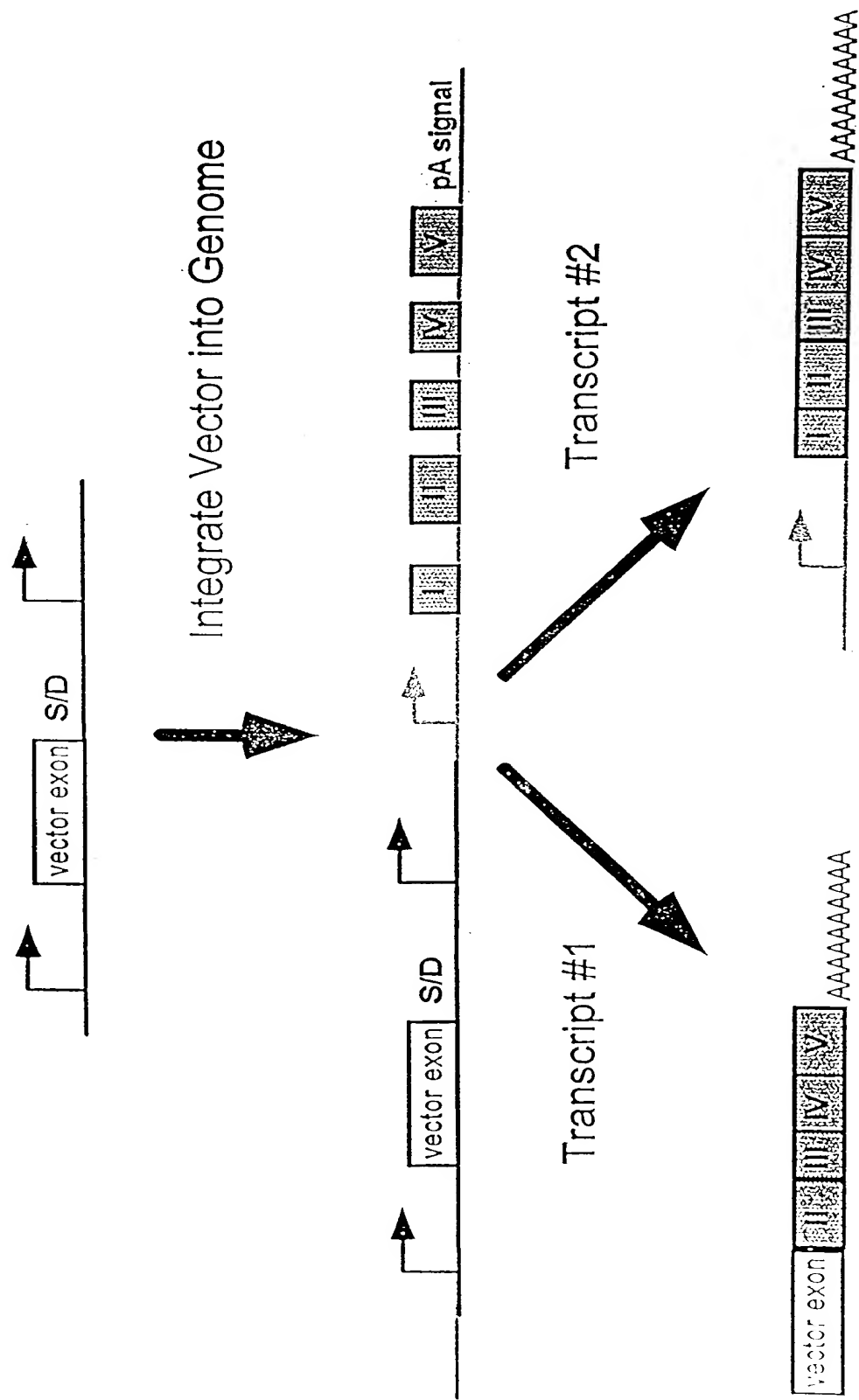


FIGURE 13

AGATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATAGCATAAATCAATATTGG
CTATTGGCCATTGCATACGTTGTATCTATATCATAATATGTACATTTATATTGGCTCATGTCCA
ATATGACCGCCATGTTGGCATTGATTATTGACTAGTTATTAATAGTAATCAATTACGGGGTCA
TTAGTTTCATAGCCCATATATGGAGTTCCGCGTTACATAACTTACGGTAAATGGCCCCGCTGGC
TGACCGCCCAACGACCCCCGCCCATTTGACGTCAATAATGACGTATGTTCCCATAGTAACGCCA
ATAGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAAACTGCCCACTTGGCAGTA
CATCAAGTGTATCATATGCCAAGTCCGCCCCCTATTGACGTCAATGACGGTAAATGGCCCGCC
TGGCATTATGCCCATGACCTTACGGGACTTTCCCTACTTGGCAGTACATCTACGTATTA
GTCATCGCTATTACCATGGTGTATGCGGTTTTTGGCAGTACACCAATGGGCGTGGATAGCGGTTT
GACTCACGGGGATTTCCTCAAGTCTCCACCCCATTGACGTCAATGGGAGTTTGTTTTGGCACCAA
AATCAACGGGACTTTCCAAAATGTCGTAACAACTGCGATCGCCCGCCCGTTGACGCAATG
GGCGGTAGGCGTGTACGGTGGGAGGTCTATATAAGCAGAGCTCGTTTATGTAACCGTCAGAT
CACTAGAAGCTTTATTGCGGTAGTTTATCACAGTTAAATTGCTAACGCAGTCAGTGCTTCTGA
CACAACAGTCTCGAACTTAAGCTGACGTGACTCTCTTA AatccacatggctacaggtagtactcgGATCTA
GCGCTATATGCGTTGATGCAATTTCTATGCGCACCCGTTCTCGGAGCACTGTCCGACCGCTTT
GGCCGCGCCCGAGTCTGTGCTCGCTTCGCTACTTGGAGCCACTATCGACTACGCGATCATGGCG
ACCACACCCGTCCTGTGGATCCTCTACGCCGGACGCATCGTGGCCGGCATCACCGGCGCCACA
GGTGGCGTTGCTGGCGCCTATATCGCCGACATCACCGATGGGGAAGATCGGGCTCGGCACTTC
GGGCTCATGACGCTTGTTCGGCTCTCTTAAGGTAGCAGATCCTTGCTAGAGTCGACCAATT
CTCATGTTTGACAGCTTATCATCGCAGATCCTGAGCTTGTATGGTGCATCTCTAGTACAATCT
GCTCTGCTGCCGCATAGTTAAGCCAGTATCTGCTCCCTGCTTGTGTGTTGGAGGTCGCTGAGT
AGTGCGCGAGCAAAATTTAAGCTACAACAAGGCAAGGCTTGACCGACAATTGCATGAAGAAT
CTGCTTAGGGTITAGGCGTTTTTGGCGTCTGCTTCGCGATGTACGGGCCAGATATACGCGTATCTGA
GGGGACTAGGGTGTGTTTAGGCGCCCGAGCGGGGCTTCGGTTGTACGCGGTTAGGAGTCCCTC
AGGATATAGTAGTTTCGCTTTTGCATAGGGAGGGGGAATGTAGTCTTATGCAATACACTGT
AGTCTTGCAACATGGTAACGATGAGTTAGCAACATGCCTTACAAGGAGAGAAAAAGCACCGT
GCATGCCGATTGGTGGAAAGTAAGGTGGTACGATCGTGCCTTATTAGGAAGGCAACAGACAGG
TCTGACATGGATTGGACGAACCACTGAATTCCGCATTGCAGAGATAATTGTATTAAAGTGCCT
AGCTCGATACAATAAACGCCATTTGACCATTACCACATTGGTGTGCACCTCCAAGCTGGGTA
CCAGCTGCTAGCCTCGAGACGCGTGATTTCCTTCGAAGCTTgtcatggttgggttcgctaaactcatcgtcgtgtgc
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ttccagaatgatttgagaaatataaaactctgccagaataccaggtgttctctgatgtccaggaggagaaaggcattaaagtacaaatltgaagtata
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CAAGCTTGAGTATTCTATCGTGTACCTAAATAACTTGGCGTAATCATGGTTCATATCTGTTTCC
TGTGTGAAATTGTTATCCGCTCACAATTCACACACACATACGAGCCGGAAGCATAAAGTGTA
AAGCCTGGGGTGCCTAATGAGTGAGCTAACTCACATTAATTGCGTTGCGCGATGCTTCCATTT
TGTGAGGGTTAATGCTTCGAGAAGACATGATAAGATACATTGATGAGTTTGGACAAACCACA
ACAAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTA
ACCATTATAAGCTGCAATAAACAAGTTAACAACAACAATTGCATTCATTTTATGTTTCAGGTT
CAGGGGGAGATGTGGGAGGTTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTAAATCCG
ATAAGGATCGATTCCGGAGCCTGAATGGCGAATGGACGCGCCCTGTAGCGGCGCATTAAAGCG
CGGCGGGTGTGTTACGCGCACCTGACCGCTACACTTGCCAGCGCCCTAGCGCCCCGCTCC
TTTCGCTTTCTTCCCTTCTTTCTCGCCAGTTTCGCCGGCTTTCCCCGTCAAGCTCTAAATCGG
GGGCTCCCTTITAGGGTTCCGATTTAGTGCTTTACGGCACCTCGACCCCCAAAAAATTGATTAG
GGTGATGGTTCACGTAGTGGGCCATCGCCCTGATAGACGGTTTTTTCGCCCTTTGACGTTGGAG
TCCACGTTCTTTAATAGTGGACTCTTGTTCAAAATGGAACAACACTCAACCCTATCTCGGT
TATTCTTTGATTTATAAGGGATTTTGGCGATTTTCGGCCTATTGGTTAAAAAATGAGCTGATTT
AACAAAAATTTAACGCGAATTTTAAACAAAATATTAACGCTTACAATTTTCGCCTGTGTACCTTC
TGAGGCGGAAAGAACCAGCTGTGGAATGTGTGTCAGTTAGGGTGTGGAAAGTCCCCAGGCTC
CCCAGCAGGCAGAAGTATGCAAAGCATGCATCTCAATTAGTCAGCAACCAGGTGTGGAAAGT
CCCCAGGCTCCCCAGCAGGCAGAAGTATGCAAAGCATGCATCTCAATTAGTCAGCAACCATA-

FIGURE 14A

GTCCCCGCCCTAACTCCGCCCCATCCCGCCCCCTAACTCCGCCCCAGTTCCGCCCCATTCTCCGCCCC
ATGGCTGACTAATTTTTTTTATTTATGCAGAGGCGGAGGCGCGCTCGGCGCTCTGAGCTATTCC
AGAAGTAGTGAGGAGGCTTTTTTGGAGGCGTAGGCTTTTGCAAAAAGCTTGATTCTTCTGACA
CAACAGTCTCGAACTTAAGGCTAGAGCCACCATGATTGAACAAGATGGATTGCACGCAGGTT
CTCCGGCCGCTTGGGTGGAGGGCTATTCGGCTATGACTGGGCACAACAGACAATCGGCTGC
TCTGATGCCGCCGTGTTCCGGCTGTCAGCGCAGGGGGCGCCCGGTTCTTTTTGTCAAGACCGAC
CTGTCCGGTGCCCTGAATGAACCTGCAGGACGAGGACGCGGGCTATCGTGGCTGGCQACGAC
GGGCGTTCCTTGCGCAGCTGTGCTCGACGTTGTCACTGAAGCGGGAAGGGACTGGCTGCTATT
GGGCGAAGTGCCGGGGCAGGATCTCCTGTCTCATCTCACCTTGCTCCTGCGGAGAAAAGTATCCAT
CATGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATTCGACCCACA
AGCGAAACATCGCATCGAGCGAGCACGTAATCGGATGGAAGCCGGTCTTGTCGATCAGGATG
ATCTGGACGAAGAGCATCAGGGGCTCGCGCCAGCCGAACCTGTTGCGCAGGCTCAAGGCGCGC
ATGCCCGACGGCGAGGATCTCGTCGTGACCCATGGCGATGCCTGCTTGCCGAATATCATGGTG
GAAAATGGCCGCTTTTTCTGGATTTCATCGACTGTGGCCGGCTGGGTGTGGCGGACCGCTATCAG
GACATAGCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGCTGACCGCTTC
CTCGTCTTTACGGTATCGCCGCTCCCGATTGCGCAGCGCATCGCCTTCTATCGCCTTCTTGACG
AGTTCTTCTGAGCGGGAATCTGGGGTTCGAAATGACCGACCAAGCGACGCCCCAACCTGCCAT
CACGATGGCCGCAATAAAATATCTTTATTTTATTACATCTGTGTGTTGGTTTTTTTGGTGAAG
ATCCGCGTATGGTGCACCTCTCAGTACAATCTGCTCTGATGCGCATAGTTAAGCCAGCCCCGA
CAGGCTGTGACCGTCTCCGGGAGCTGCATGTGTGAGAGGTTTTTACCCTCATCACCAGAACCGC
GCGAGACGAAAGGGCCTCGTGATACGCCTATTTTTATAGGTTAATGTATGATAAATAGGTT
TCTTAGACGTCAGGTGGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTTTTCT
AAATACATTCAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTTCAATAATATT
GAAAAAGGAAGAGTATGAGTATTCAACATTTCCGTGTGCGCCCTTATCCCTTTTTTTCGGCAT
TTTGCCTTCTGTTTTTTGCTCACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGT
TGGGTGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTTC
GCCCGAAGAACGTTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTAT
CCCGTATTGACGCCGGGCAAGAGCAACTCGGTGCGCCGCATACACTATTCTCAGAATGACTTGG
TTGAGTACTCACCAGTACAGAAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGC
AGTGCTGCCATAACCATGAGTGATAACACTCGGGCAACTTACTTCTGACAACGATCGGAGG
ACCGAAGGAGCTAACCGCTTTTTTGCACAACATCGGGGATCATGTAACCTCGCCTTGATCGTTG
GGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCAGATGCCGTGATGCAA
TGGCAACAACGTTGCGCAAACTATTAACCTGGCGAACTACTTACTCTAGCTTCCCGGCAACAAT
TAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCCTTCTGCGCTCGGCCCTTCCGGCT
GGCTGGTTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCA
CTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGTCAGGCAAC
TATGGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGTAAC
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GATCTAGGTGAAGATCCTTTTTGATAATCTCATGACCAAAATCCCTAACGTGAGTTTTCTGTT
CCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTTCTGCG
CGTAATCTGCTGCTTGCAACAAAAAAACCACCGCTACCAGCGGTGGTTTGTGTCGGGATCA
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CCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCCTACATACT
CGCTCTGCTAATCCTGTTACCAAGTGGCTGCTGCCAGTGGCGATAAGTCTGTCTTACCGGGTT
GGACTCAAGACGATAGTTACCGGATAAAGGCGCAGCGGTGCGGCTGAACGGGGGGTTCTGTGA
CACAGCCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGA
GAAAGCGCCACGCTTCCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTGC
GAACAGGAGAGCGCACGAGGGAGCTTCCAGGGGGAAACGCCTGGTATCTTTATAGTCTGTG
GGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGGGCGGAGCCTA
TGAAAAAACGCCAGCAACGCGCCCTTTTTACGGTTCCTGGCCTTTTGCTGGCCTTTTGCTCAC
ATGGCTCGAC

FIGURE 14B

GATCTTCAATATTGGCCATTAGCCATATTATTTCATTGGTTAATAAGCATAAATCAATATTGGCT
 ATTGGCCATTGCATACGTTGTATCTATATCATAATATGTACATTTATATTGGCTCATGTCCAAT
 ATGACCGCCATGTTGGCATTGATTATTGACTAGTTATTAATAGTAATCAATTACGGGGTCAAT
 AGTTCATAGCCCATATATGGAGTTCGCGTTACATAAATTACGGTAAATGGCCCGCTGGCTG
 ACCGCCAACGACCCCGCCCATTTGACGTCATAAATGACGTATGTTCCCATAGTAACGCCAAT
 AGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAAACTGCCCACTTGGCAGTACA
 TCAAGTGTATCATATGCCAAGTCCGCCCCCTATTGACGTCAATGACGGTAAATGGCECGCCTG
 GCATTATGCCCAGTACATGACCTTACGGGACTTTCTACTTTGGCAGTACATCTACGTATTAGT
 CATCGCTATTACCATGGTGATGCGGTTTTGGCAGTACACCAATGGGCGTGGATAGCGGTTTTGA
 CTCACGGGGATTTCCAAAGTCTCCACCCCATTTGACGTCAATGGGAGTTTGTITTTGGCACCAAAA
 TCAACGGGACTTTCCAAAATGTCGTAACTGCGATCGCCCGCCCCGTTGACGCAAAATGGG
 CGGTAGGCGTGTACGGTGGGAGGTCTATATAAGCAGAGCTCGTTTGTGAAACCGTCAGATCA
 CTGAATTTCTGACGACCTACTGATTAACGGCCATAGAGGGCTCCTGCAGATCACTAGAAGCTTT
 ATTGCGGTAGTTTATCACAGTTAAATTGCTAACGCAGTCAAGTCTTCTGACACAACAGTCTCG
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 CCTATCTGGCCAGTTAGCAGTCAAGAAAGAGTTTAAAGAGAGCCGAAACAAGCGCTCATGA
 GCCCGAAGTGGCGAGCCCGATCTTCCCCATCGGTGATGTCGGCGATATAGGCGCCACCAACG
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 GACCGCTGCGCCTTATCCGGTAACCTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCG
 CCACTGGCAGCAGCCACTGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGA
 GTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAGTATTTGGTATCTGCGCTCT
 GCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAAACCAACCCG
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 CTCCCCAGCAGGCAGAAGTATGCAAAGCATGCATCTCAATTAGTCAGCAACCAGGTGTGGAA
 AGTCCCCAGGCTCCCCAGCAGGCAGAAGTATGCAAAGCATGCATCTCAATTAGTCAGCAACCAGGTGTGGAA
 ATAGTCCCCGCCCTAACTCCGCCCATCCCGCCCCCTAACTCCGCCCAGTTCGGCCCCATTCTCCG
 CCCCATGGCTGACTAATTTTTTTTATTTATGCAAGAGGCCGAGGCCGCTCGGCTCTGAGCTA
 TTCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCTAGGCTTTTGCAAAAAGCTTGATTCTTCT
 GACACAACAGTCTCGAACTTAAGGCTAGAGCCACCATGATTGAACAAGATGGATTGCACGCA
 GGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTCCGGCTATGACTGGGCACAACAGACAATCGG
 CTGCTCTGATGCCCGCTGTTCGGCTGTGACGCGAGGGGCGCCCGGTTCTTTTTGTCAAGAC
 CGACCTGTCCGGTGCCTGAATGAACTGCAGGACGAGGCAGCGCGGCTATCGTGGCTGGCCA
 CGACGGGCGTTCCCTTGCGCAGCTGTGCTCGACGTTGTCACTGAAGCGGGAAGGGACTGGCTG-

FIGURE 15A

CTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCATCTCACCTTGCTCCTGCCGAGAAAGTA
TCCATCATGGCTGATGCAATGCGGGGGCTGCATAACGCTTGATCCGGCTACCTGCCCATTCGAC
CACCAAGCGAAACATCGCATCGAGCGAGCACGTA CTGGATGGAAGCCGGTCTTGTCGATCA
GGATGATCTGGACGAAGAGCATCAGGGGGCTCGCGCCAGCCGAACTGTTCCGCCAGGCTCAAGG
CGCGCATGCCCGACGGCGAGGATCTCGTCGTGACCCATGGCGATGCCTGCTTGCCGAATATCA
TGGTGGAAAAATGGCCGCTTTTCTGGATTTCATCGACTGTGGCCGGCTGGGTGTGGCGGACCGCT
ATCAGGACATAGCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGCTGAC
CGCTTCCTCGTGCTTTACGGTATCGCCGCTCCCGATTTCGCAGCGCATCGCCTTCTATCGCCTTC
TTGACGAGGocaTTTCtgatggaggtagCGGCCGCTAACCTGGTTGCTGACTAAATTGAGATGCATGCTTT
GCATACTTCTGCCTGCTGGGGAGCCTGGGGACTTTCCACACCCTAACTGACACACATTCCACA
GCTGGTTCTTTCCGCCTCAGAAGGTACACAGGCGAAAATTGTAAGCGTTAATATTTTGTAAAA
TTCGCGTTAAATTTTTGTAAATCAGCTCATTTTTTAACCAATAGGCCGAAATCGGCAAAATC
CCTTATAAATCAAAAGAATAGACCGAGATAGGGTTGAGTGTGTTCCAGTTTGGAACAAGAG
TCCACTATTAAAGAACGTGGACTCCAACGTCAAAGGGCGAAAAACCGTCTATCAGGGCGATG
GCCAC

FIGURE 15B

GATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATAGCATAAATCAATATTGGCT
ATTGGCCATTGCATACGTTGTATCTATATCATATAATGTACATTTATATTGGCTCATGTCCAAT
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Figure 16A

GTATCCATCATGGCTGATGCAATGCGGCGGCTGCATAACGCTTGATCCGGCTACCTGCCCATTC
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FIGURE 16B

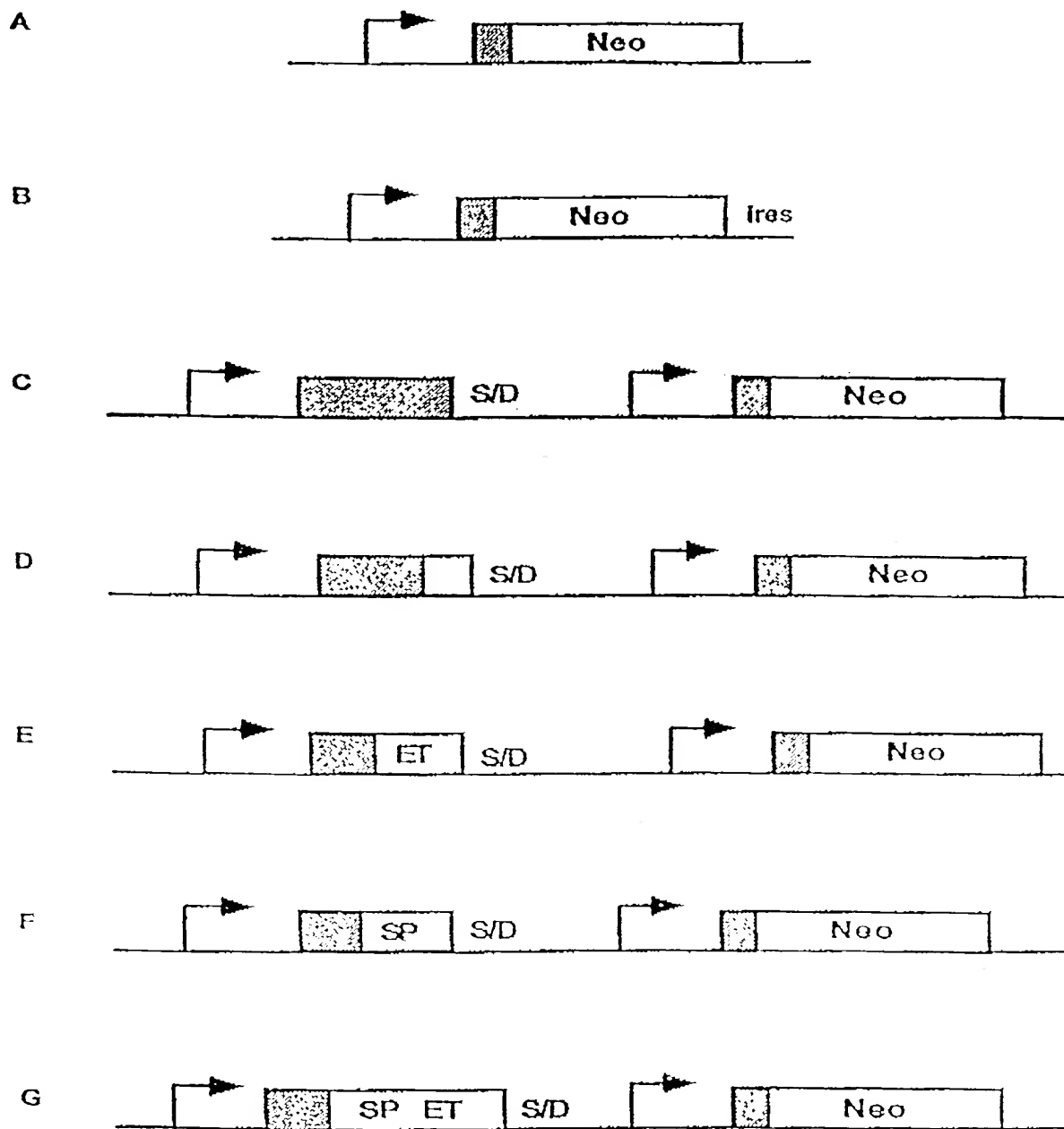


Figure 17

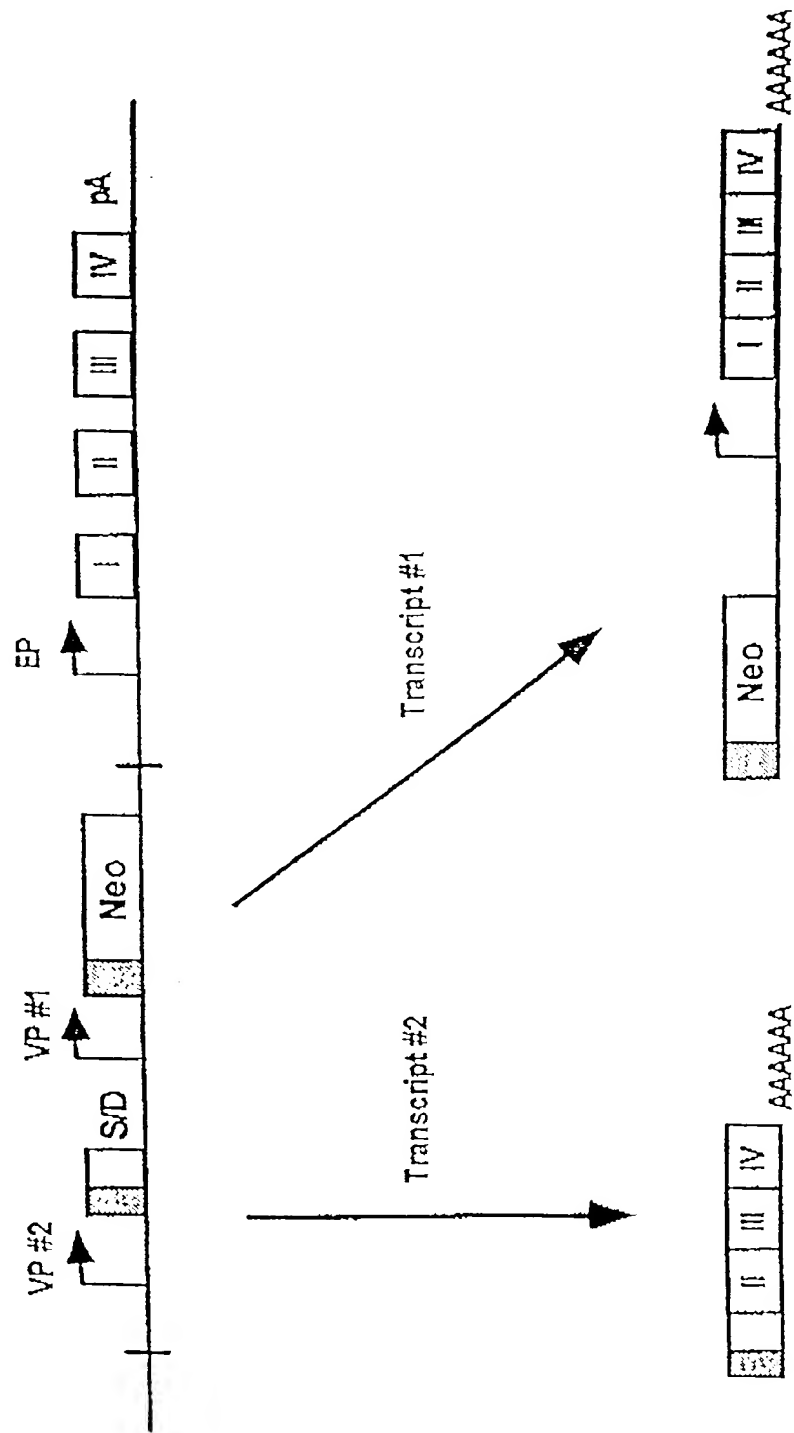


Figure 18



Figure 19

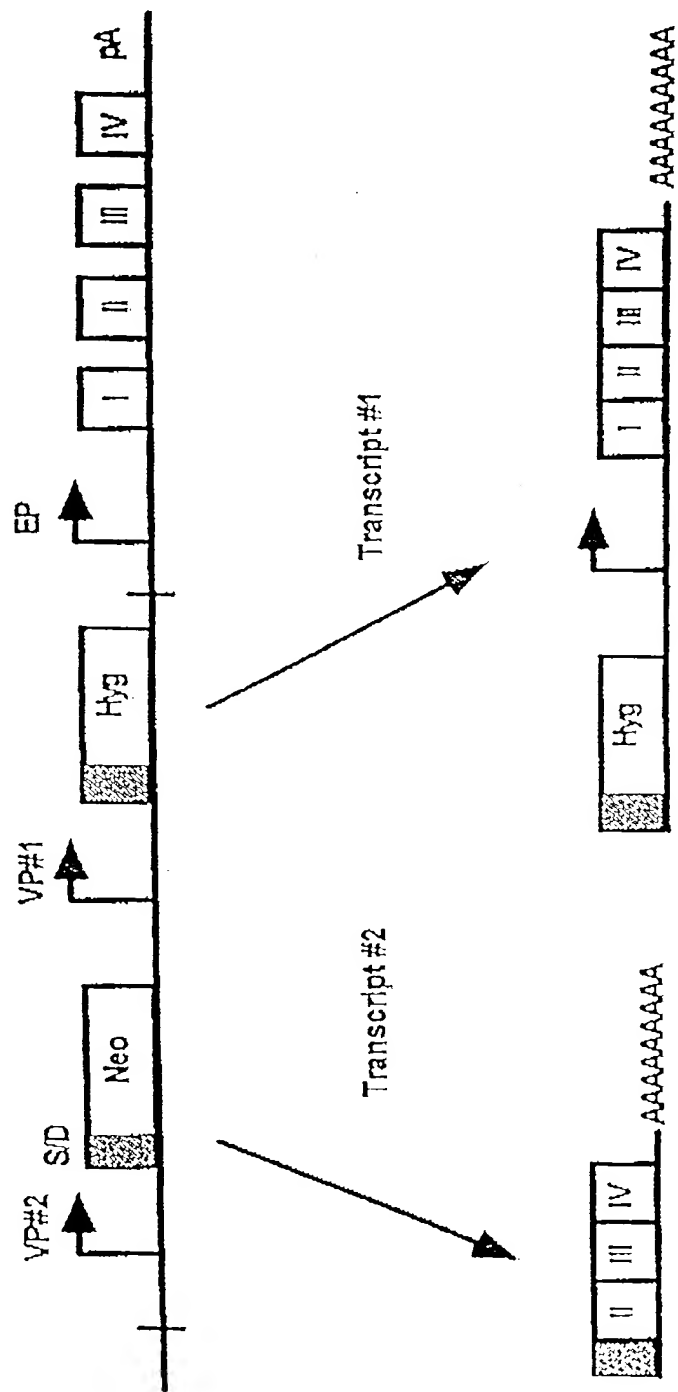


Figure 20A

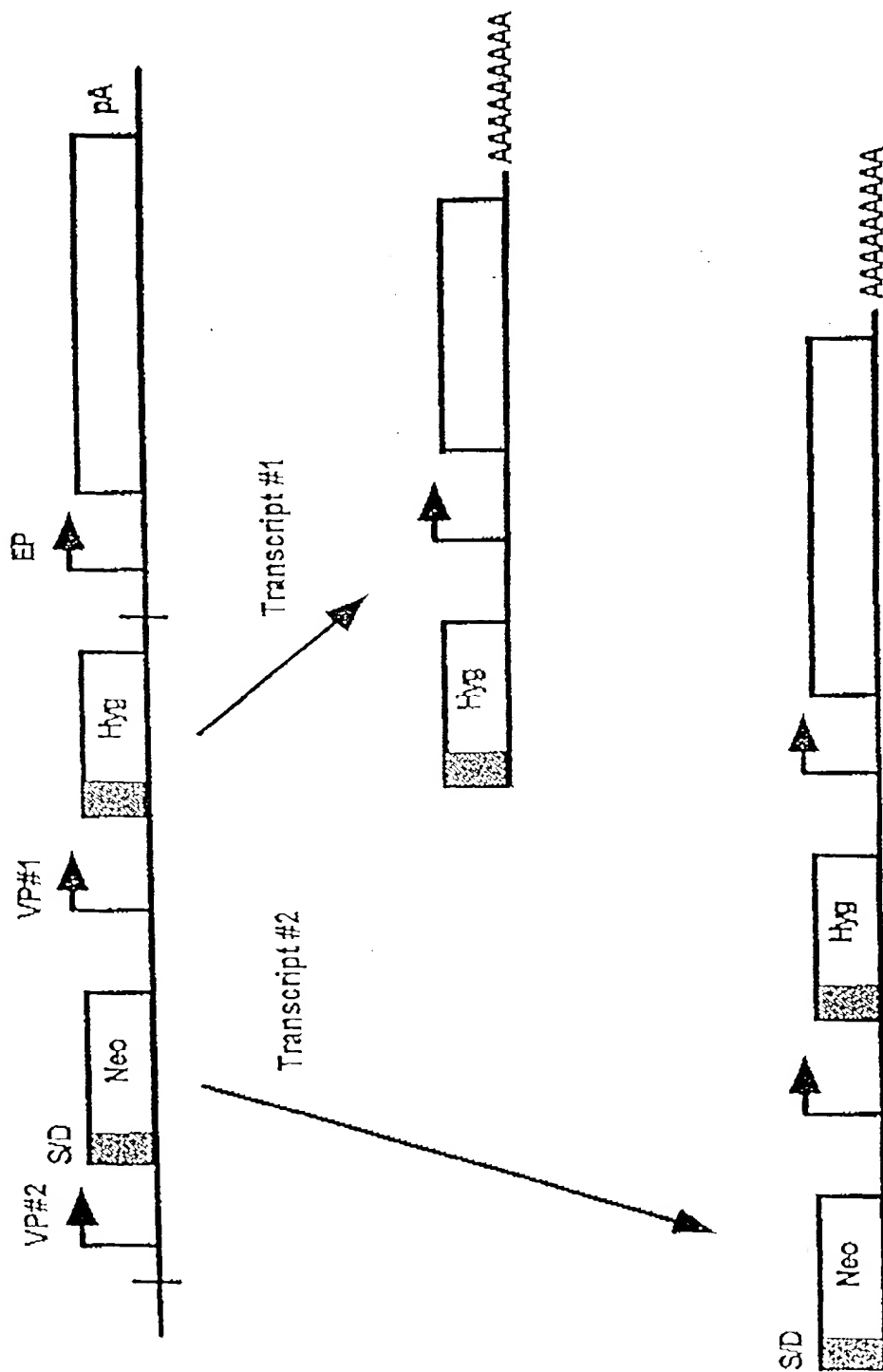


Figure 20B

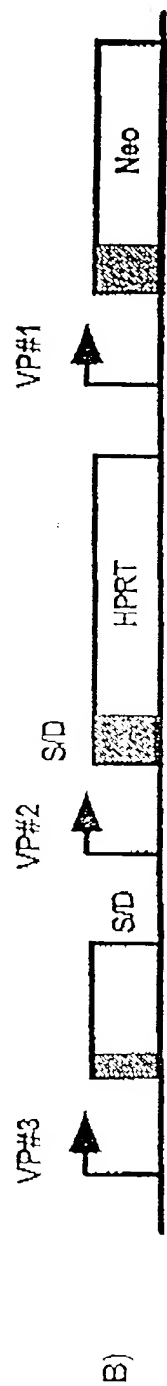
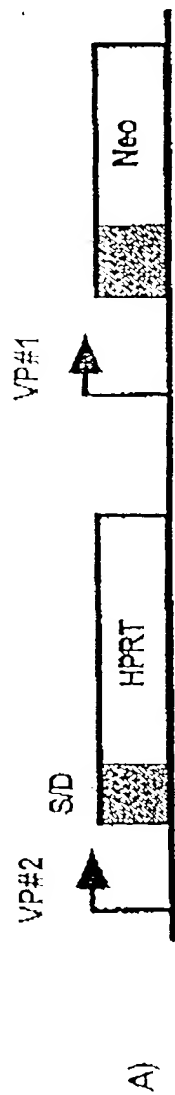


Figure 21

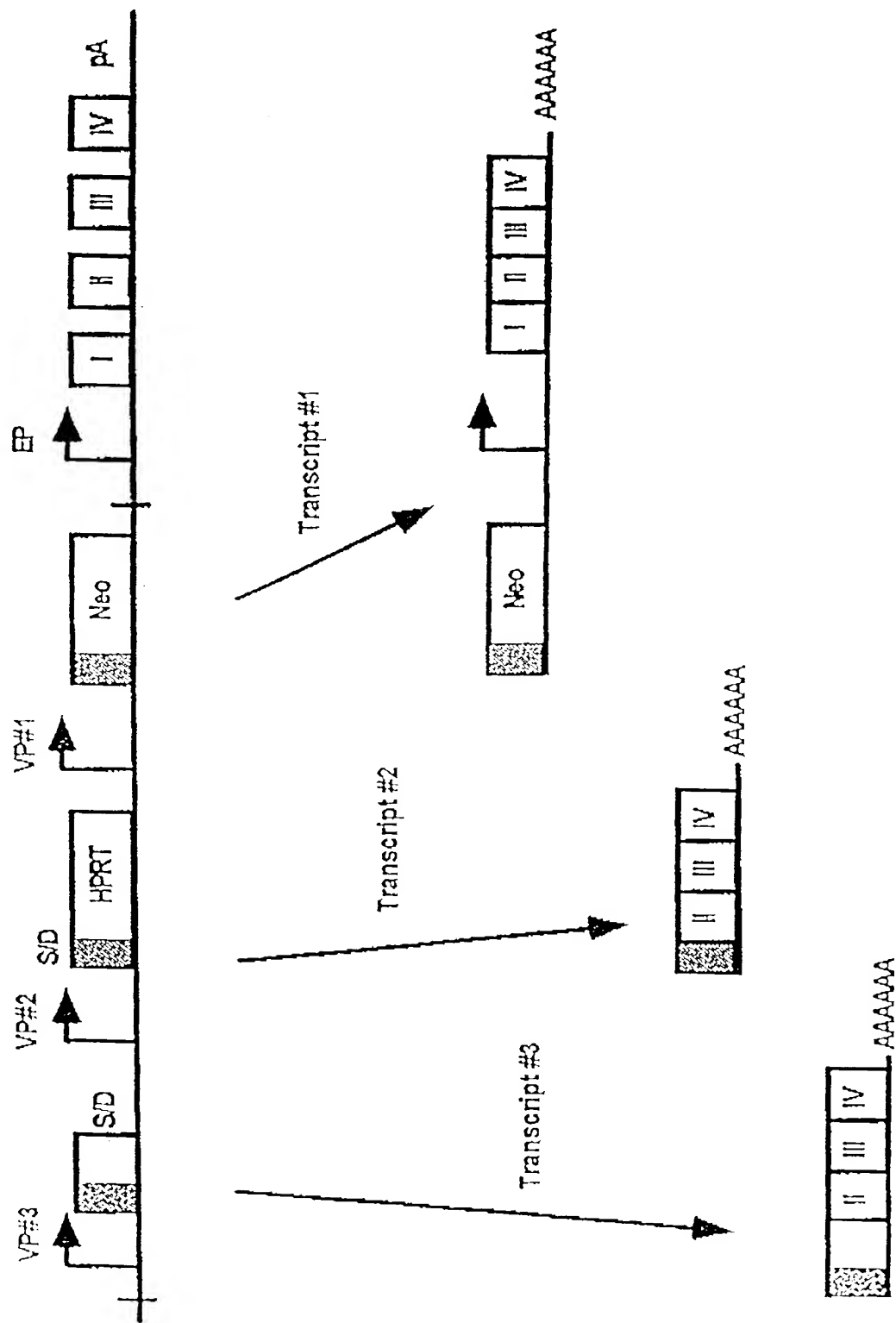
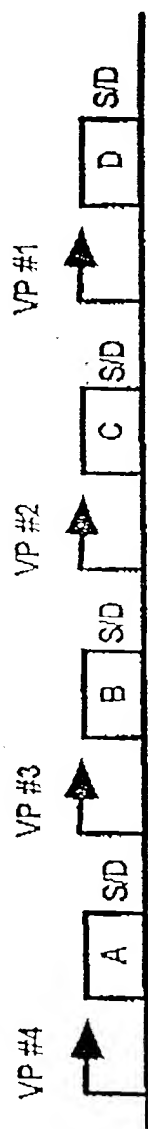


Figure 22



| | | | |
|-------------------------------|--------|------------------|---------------|
| A) Exon A and Flanking Intron | 5' UTR | ACCCAGGTGATG | Vector Intron |
| B) Exon B and Flanking Intron | 5' UTR | ACCATGCCAGGTGATG | Vector Intron |
| C) Exon C and Flanking Intron | 5' UTR | ACCATGCCAGGTGATG | Vector Intron |
| D) Exon D and Flanking Intron | 5' UTR | ACCATGCCAGGTGATG | Vector Intron |

Figure 23

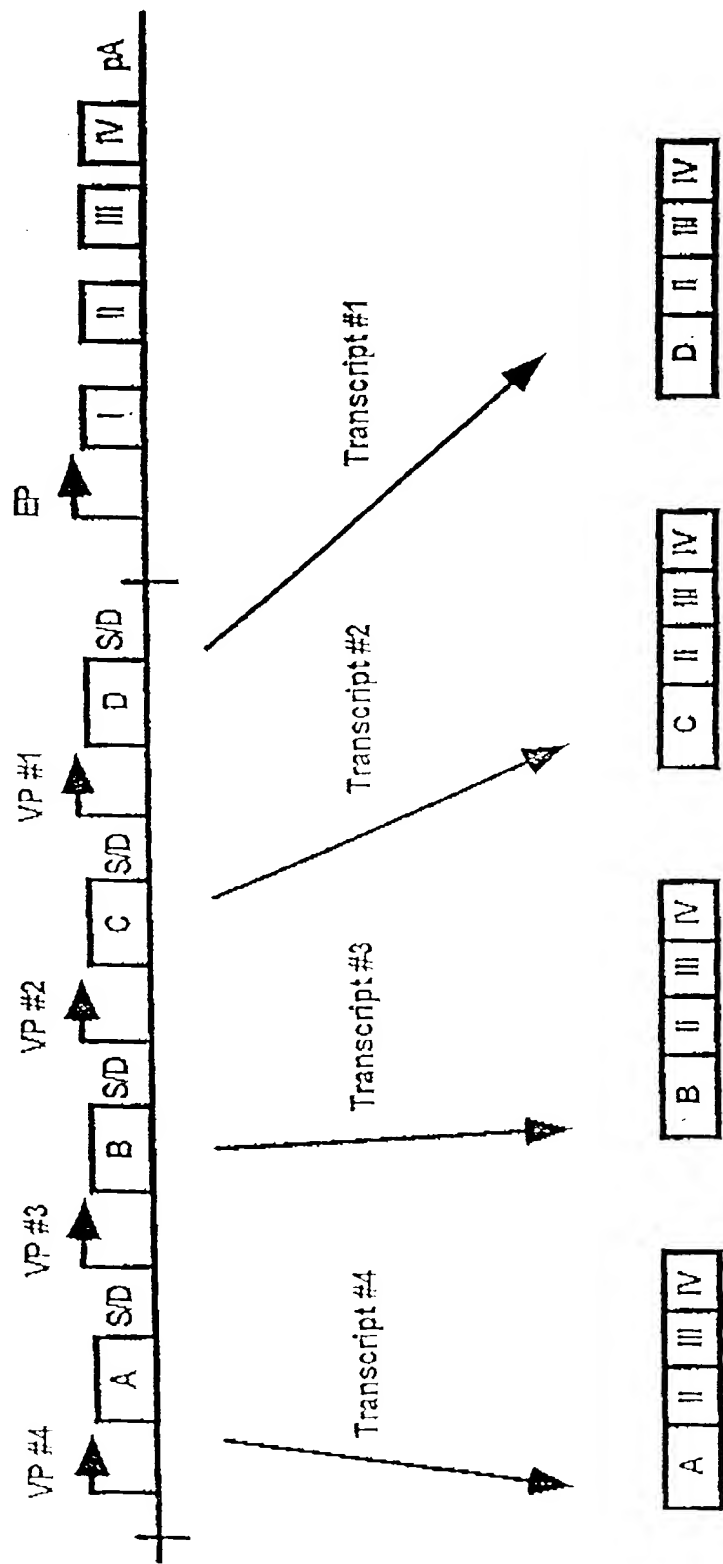


Figure 24

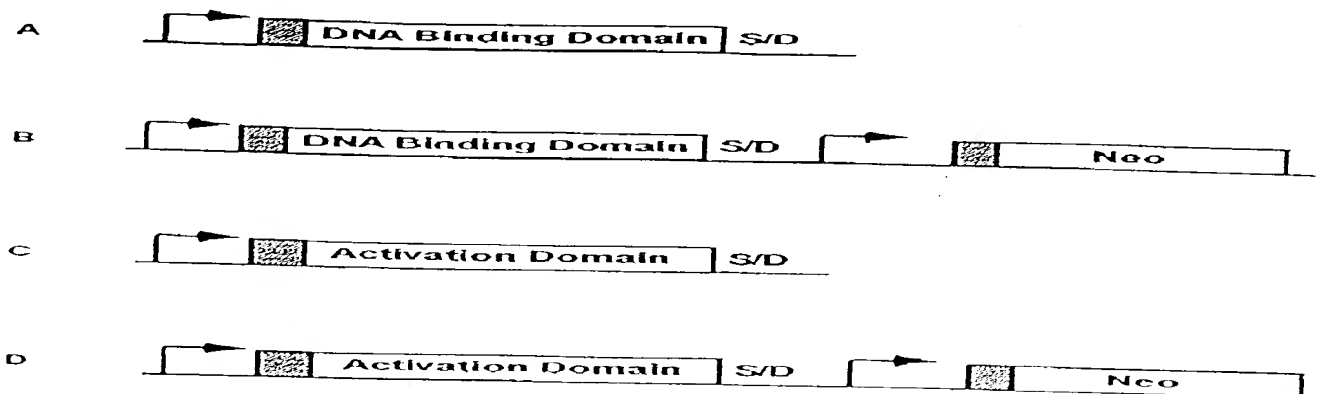


FIGURE 25

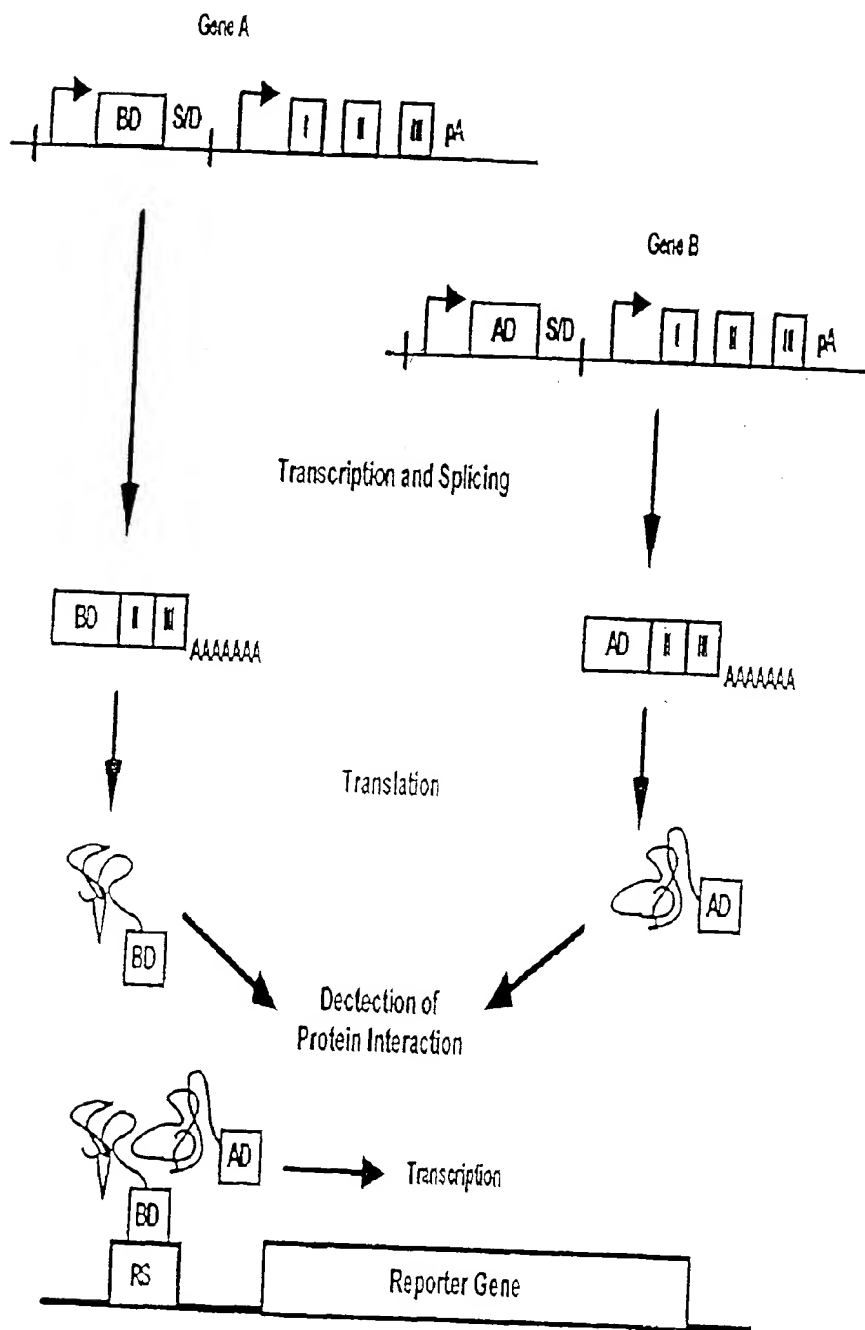


Figure 26

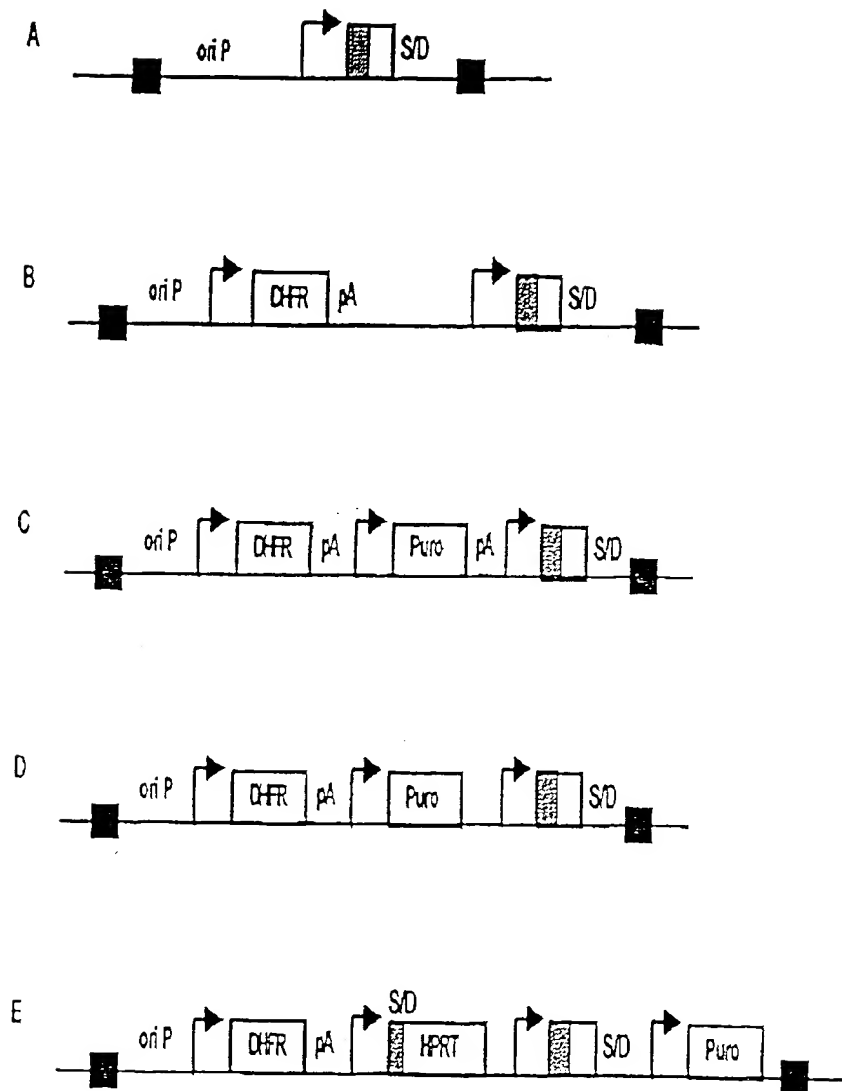


FIGURE 77

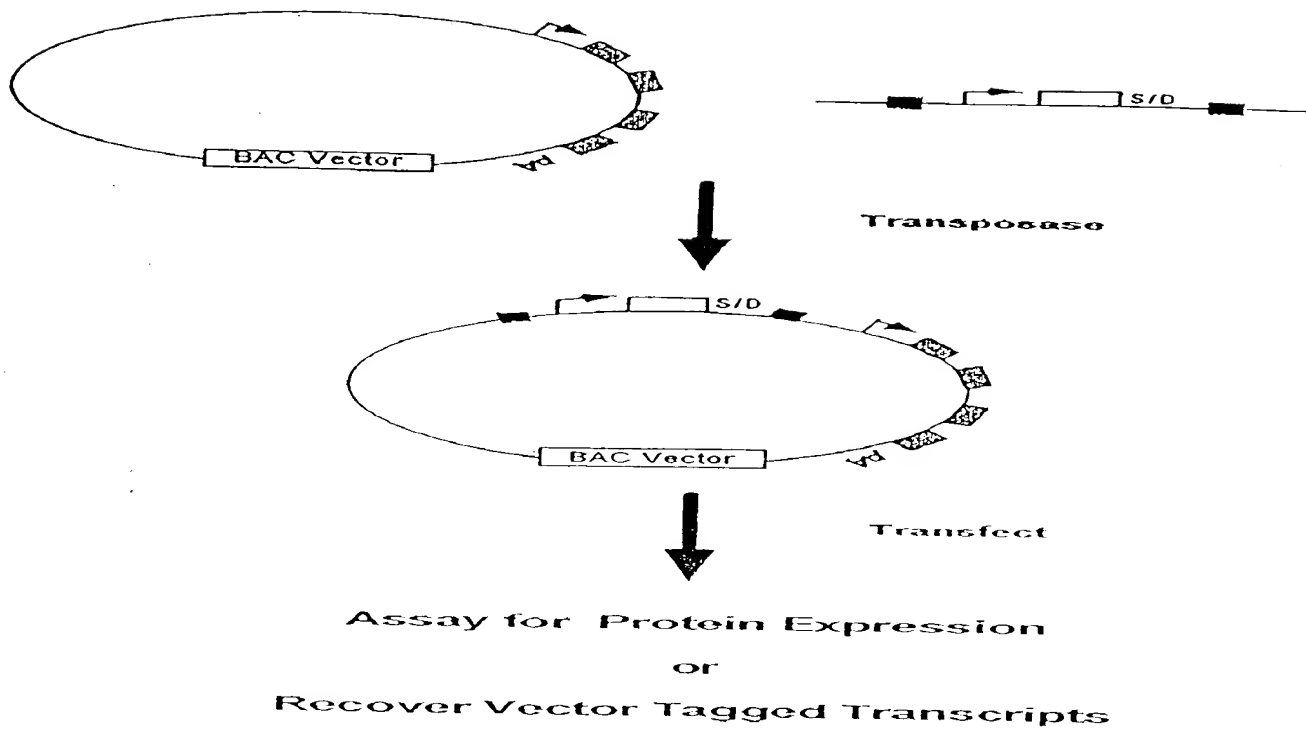


FIGURE 28

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Figure 29B

GATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATAGCATAAA
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INSURE 30B

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FIGURE 30C

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Figure 31A

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Figure 32A

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FIGURE 33B

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Figure 330

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Figure 33D

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Figure 3A

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Figure 35B



FIGURE 36

GATCTTCAATATTGGCCATTAGCCATATTATTCATTGGTTATATAGCATAAA
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Figure 37A

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Figure 37B

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 cgacctcgaaattctaccgggtaggggagggcgttttcccaaggcagctctggagcatgcgcttttagcagccccgctgggc
 acttggcgctacacaagtggcctctggcctcgacacattccacatccaccggtagggcgccaaccggctccgttctttggt
 ggccccctcgccacattctactctccccctagtcagggaagtcccccccgccccgcanctcgcgctgctgcaggacgtg
 acaaatggaaatagcacgtctcactagctcgtgcagatggacaagcacgctgagcaatggagcgggtaggcctttggg
 gcagcggccaatagcagctttgctccttcgcttctgggctcagaggctggnaaggggtgggtccgggggcggtcag
 gggcggtcagggggcgggggcgggcgccgaaggtcctcgggagggcccgcatctgcacgcttcaaaagcgacgt
 ctggcggctgttctctcttctcatctcgggcttgcacctgcatcctatagatctcgagcagctgaagcttaccatga
 ccgagtacaagcccaggtgcgctcgccaccgcgacgacgtccccggggcggtacgcaccctcgccgcccgttgc
 ccgactaccccgccacggccacacgctcgacccggaccgcacatcgagcgggtcaccgagctgcaagaactcttct
 cagcgctcgggctcgacatcggaaggtgtgggtcgcgacgacggcgccgcggtggcggtctggaccacgccc
 gagagcgtcgaagcggggcggtgttgcggagatcgcccgcgcatggccgagttgagcgggtcccggtggccgc
 gcagcaacagatggaaggcctcctggcgccgaccggggcccaaggagcccgctggttcttggccaccgtcgggc
 gtcttcggccgaccaccagggaagggtctggcaagcgccgtgctccccggagtgaggcgccgagcgcgccg
 ggggtcccgcttctggagacctccgccccgcaacctccccctctacgagcggtcggcttaccgtcaccgcccag
 gtcgaggtgcccgaaggaccgacacgtgtgcatgacccgcaagcccggtgctgacgccccgccccagaccgca
 gcgccccgaccgaaaggagcgacgaccccatgcatgcatggcactgggcaggttaagtatcaaggttagcGGCCGC
 TAACCTGGTTGCTGACTAATTGAGATGCATGCTTTGCATACTTCTGCCTGCT
 GGGGAGCCTGGGGACTTTCCACACCCTAACTGACACACATTCCACAGCTGG
 TTCTTTCCGCCTCAGAAGGTACACAGGCGAAATTGTAAGCGTTAATATTTT
 GTTAAAAATTCGCGTTAAATTTTGTAAATCAGCTCATTTTTAAACCAATAG
 GCCGAAATCGGCAAAATCCCTTATAAATCAAAAGAATAGACCGAGATAGG
 GTTGAGTGTGTTCAGTTTGGAAACAAGAGTCCACTATTAAGAACGTGGA
 CTCACACGTCAAAGGGCGAAAAACCGTCTATCAGGGCGATGGCCAC

Figure 37C